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An Address

ON

CANADIAN MEDICINE*

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THE University of Western Ontario has earned our admiration and respect. For fifty years it has foreseen and met a growing need. On this, its fiftieth anniversary, we proudly offer our heartiest congratulations and with it our best wishes for future success. In passing, we pause to pay tribute to those earnest men who have made this success possible: to Bishop Hellmuth, a man of vision, and to the members, past and present, of its Board of Governors and its Faculty. They have created a University which adds distinction to the city of London.

This occasion celebrates the inauguration of a new president, William Sherwood Fox. In this new office we wish him success, contentment and happiness. Under his wise leadership may we see the University make progress unparalleled in its history. We should take this opportunity also to offer our gratitude to Colonel William Gartshore, who has done more perhaps than any other non-medical man in London for the Medical School. For years, in his quiet way, he has maintained friendly connections with the medical school through Victoria Hospital and has been largely responsible for providing clinical facilities for the school and also for providing medical equipment for carrying on the most advanced type of medical practice, in the hospital.

The task allotted me deals with the development of medicine in Canada. With an audience such as this it would be an impossible task to relate the part played by Canadian medicine unless, in the beginning, we can orient ourselves

to some extent with regard to medical history in general. I shall therefore attempt to portray a few glimpses of medicine in the making.

In the dim dark days of antiquity, before the dawn of history, medicine of a kind was practised. It had to do in most instances with the control of evil spirits and hence was in the hands of spiritual advisors, such as they were. On the whole, it was fanciful and ineffective, although it no doubt tended to relieve the sufferings of the mind, and it handed down certain empiric measures of relief and served to enrich folklore.

In the opening scene may be witnessed the beginning of real medicine in Greece in the golden days of Pericles. In that day the sick were brought to the Temples of Health (Asclepieia) of which there were about 300, many of them magnificent structures. "The sick person after sacrifice and purification lay down to sleep near the altar of the god and the mode of treatment was revealed to him either in a dream, or more directly by the priest himself, dressed so as to represent the deity." Into this environment came a man of wisdom, Hippocrates, "the Father of Medicine". He made the greatest contribution of all time to medicine, namely, common sense. He taught that diseases result from natural causes and are not the work of evil spirits, that observation of the sick is crucial to the understanding of the disease, that Nature is the great healer, that the physician must learn to foretell the outcome of disease, and that treatment should not be by rote but individualized to meet the need of every patient. He studied the sick and recorded their histories and his observations concerning them. In addition, he formulated

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the Hippocratic oath, which introduced a certain ethical element into medicine, elevating the profession and tending to make the physician at least a gentleman.

The next scene centres in Rome. For lack of time, I shall pass over the interesting developments in anatomy in the great medical centre in Alexandria, which is better known, perhaps, as the setting of the love scenes of Cæsar, Cleopatra and Mark Antony. In Rome, there was Asclepiades, a man of fine appearance, originally a poor native of Greece, who learned medicine at Alexandria and studied rhetoric in Athens. He came to Rome in Cæsar's day and gained the friendship of the great, including Crassus and Cicero. He was the physician of the patrician and the prototype of the fashionable physician of today. He advanced to popularity in part by proclaiming boldly that the physician should cure his patient "quickly, safely and pleasantly." He had further claims to fame, for he promulgated certain new doctrines, particularly insisting on the importance of diet, exercise and baths. Incidentally, he invented the shower bath. Next we meet a much greater man, Galen, the best known medical writer of ancient Rome and the medical dictator of the world for several centuries. Galen was a true investigator and made many valuable contributions to anatomy and physiology. He tried to convert the medical profession to the ways of science. Had medical men been willing to follow his lead in this direction, there probably would have been much greater progress during the centuries following. Galen had the idea of an investigative approach to medicine, but without appreciation or stimulation from his contemporaries his own attempts in this direction were unavailing. By many critics he is said to have hindered rather than advanced the cause of scientific medicine.

Again the scene shifts; this time to the Far East. In the seventh century the wild tribes of Arabia descended on Rome and stripped her of her most valued eastern provinces. Their terms of peace were peculiar. The right of the victors to collect and purchase Greek manuscripts was stipulated. Although wild and warlike, the Arabs were endowed by nature with a great love of learning. They translated these manuscripts, compiled books, and kept burning the torch of Greek medicine, handing it down to western civilization. They brought into existence great centres of learning, hospitals, scientific institutions and academies. Great libraries were built

at Bagdad, Cairo, Damascus, Cordova and Gondisapor. They also produced great physicians, such as Rhazes, who introduced many new drugs, and Avicenna, who revived the teachings of Galen and Aristotle, and who wrote a work on medicine which became the standard for the world throughout four centuries.

About the time that Columbus was discovering the new world, there came to the old world the Renaissance or revival of learning. So far as medicine is concerned, two figures were of particular interest, Paracelsus and Harvey. Paracelsus, bombastic, abusive, and somewhat of a charlatan, is one of the most interesting characters in the history of medicine. Justly or unjustly, he is credited with being the father of chemical medicine. To him disease was chemical in origin and he insisted that conceptions of treatment must involve chemical considerations. He was followed by the greatest man, barring Hippocrates, in the history of medicine, William Harvey, who first demonstrated the circulation of the blood and is considered the "Father of Modern Medicine." Harvey was born in England in the reign of Elizabeth and as a young man journeyed to Padua, the medical centre of the world, and there worked with the masters of medicine. On his return to London, he made his great discovery and forced it on an unreceptive world. By his methods of investigation, reasoning and demonstration, he upset the old philosophy of medicine and substituted in its stead the science of medicine.

We shall now journey with Jacques Cartier to the new world. On his second visit to Canada he landed his followers from three small vessels and established a colony at Stadacona, the present site of Quebec. He proceeded to Hochelaga (Montreal) and there met the paralyzed Indian chief, Agouhanna, who indicated that he expected restoration to health through the simple expedient of the laying on of hands. He gave to Jacques Cartier his friendship and his crown made of the skin of the hedgehog, and then presented for cure a motley crew, the aged, the maimed, the halt, and the blind. Cartier could give them little, but now McGill University, which stands on this historic spot, grants to all who seek it the best that the medicine of the world has to offer.

As is well known, medicine at this time was emerging from the darkness of the middle ages. Strange as it may seem, these representatives of the old civilization were more ignorant in

some respects than the aborigines of the new world and were enlightened as to the treatment of one of their most serious diseases by the ignorant and lowly Indian. *Mal de terre*, scurvy, the scourge of ships, the plague of the Indians and of the early settlers, laid hold of 90 per cent of Cartier's men. In desperation he spied on the red men and thus learned of the healing virtues of a certain spruce, "annedda," the tree of life. After losing a considerable proportion of his settlers, the remainder were miraculously restored to health within six days after consuming the bark and sap of a large hemlock which was supplied by the Indians. "For it profited so much that all those who would use it recovered health and soundness, thanks to God."

The first physicians among the French pioneers were ship surgeons, and as there were many ships coming and going the country was well supplied with surgeons. They often acted in the capacity of apothecaries. The most illustrious was Michel Sarrazin, a surgeon-major of the troops, physician to L'Hôpital Général and a student of natural history, who made many reports to the Royal Academy of Sciences on animals and plants found in the new world. He was supported by the King of France, but on so small a salary that he found it difficult to make both ends meet. He died in the Hôtel Dieu, Quebec, in 1702.

The Hôtel Dieu of Quebec, the first in Canada, started under the guidance of the Jesuits, has an interesting story of its own. In the early days of Quebec, three nursing sisters from Dieppe were being sent out by Richelieu's niece, the Duchess d'Aiguillon, in 1639 to found a hospital in the new world. They found inspiring ship companions, three Ursuline sisters who were to start a convent in Canada. "After a long and arduous voyage, they arrived in Quebec on the first of August, 1639. The entire city was at the quay to meet them, and they were received with open arms; all work ceased, shops were closed and a holiday was proclaimed. The Governor, M. de Montmagny, Chevalier de Malte, at the head of his troops, welcomed them on the quay. Cannons boomed, flags flew to the breeze and the whole town was en fête. A procession was formed and, amid the acclamations of the multitude the sisters were conducted to the church, where a *Te Deum* was chanted." As the chronicler tells us: "The sisters were so overjoyed that they felt like kissing the soil of this savage land which offered them only trials, tribulations

and a tomb."¹ Working under unbelievable handicaps, these sisters ministered to the sick of the colony and also to the Indians. In the first eight months more than 180 patients entered the hospital and more than 200 poor savages found relief there.

Following the British conquest of Canada, there was a falling off of the number of qualified physicians; most of the qualified pioneer English physicians were army surgeons. One of these, Latham, was one of the first to introduce inoculation into Canadian practice, inoculating some of the soldiers of the garrison in Quebec in 1785.

An interesting glimpse is afforded of the first physician licensed to practise in the upper part of Canada, John Gilchrist, of Hamilton. His life demonstrates that a physician can be a Jack-of-all-trades. He passed his examinations in 1819 and was gazetted military surgeon in 1822. Besides practising his profession, he was a farmer and conducted a sawmill and a gristmill. He was appointed a justice of the peace; he served in the legislative assembly and was district treasurer. But Satan finds some mischief still for idle hands to do, and along with several others he was arrested for complicity in the MacKenzie rebellion. In consequence he moved to Port Hope where he died in 1859.

The pioneer spirit is also exemplified in the life of John Rolph. He was a practitioner of medicine, politician, member of the bar, and the founder of the school which eventually became the medical department of Toronto University. He came to Canada from England in 1812 and on his way was detained by the Americans, who suspected him of being a spy. He returned to England and worked under Sir Astley Cooper at Guy's and St. Thomas' hospitals, and was a member of the Royal College of Surgeons. He returned to Canada in 1823. He then acted as school trustee, was a member of the board of education, and was elected to Parliament in 1824. He established the first hospital in Upper Canada at St. Thomas. Later he established a class in medicine. He participated in the rebellion of 1837 and had to flee to the United States, with a reward on his head of 500 pounds. After the amnesty, he returned in 1843 and started his school again in 1848, the Toronto School of Medicine, which later became the medical department of Victoria University and eventually was the nucleus for the present department of

medicine of the University of Toronto. He died at Mitchell in 1870.

Medical conditions were quite favourable in Canada in 1875. Medical schools, good for that day, were established in Montreal (McGill in 1824; *École de Médecine de Montreal* in 1843); in Quebec (Laval in 1857); in Toronto (Toronto School of Medicine in 1848); in Kingston (Queen's College in 1854); and in Halifax (Dalhousie in 1870). The faculties in general were composed of outstanding practitioners of medicine, many of whom were most scholarly and who devoted time and energy to the work with little or no financial recompense. Clinical material in adequate amounts was furnished by associated hospitals. The students received excellent practical training which adequately equipped them for general practice, the type of work to which the majority of physicians devoted their efforts and their lives. Specialists often participated in the teaching of fundamental branches, such as biology, zoology, botany and chemistry. But in most fundamental branches, the burden of teaching was carried by practitioners who were specially interested in one or more of these branches.

The life of most of the practitioners was that of the pioneer. By this time the frontiers of Canada had been pushed forward to the Pacific coast, but the land was sparsely settled. Small settlements were scattered through the length and breadth of the land, but in general at great distances from each other. Transportation was difficult. The country physician carried on his profession in small centres but travelled with his saddle bags, on horseback, far and near in the care of the sick,—McLures—beloved physicians looking after Drumtochtys—"Nae new fangled ways"—a "blister for the outside an' Epsom salts for the inside."

At this time Pasteur was beginning his work and the germ theory was unfolding. Infectious diseases were treated by the old methods, involving rest in bed, limitation of diet and the administration of certain drugs for the relief of outstanding symptoms. Prevention of infection through vaccination was unknown except in relation to smallpox; specific treatment by serum and vaccines also was unknown. Antiseptic and aseptic surgery had not yet come into existence; so in Canada, as elsewhere, surgical operations were attended by an appalling mortality. The glands of internal secretion were not understood and hence diseases of these organs were treated

in a most ineffective way. Dietary deficiencies, although rife, were not recognized. Anæsthetics, ether and chloroform, were administered, but because of inexperience and lack of proper control, fatal accidents were common. Preventive medicine of a kind was in the hands of local physicians, practised as a community measure, and without state or nation-wide control. Because the physician was ignorant of the nature of infectious disease, epidemics of typhoid fever flourished everywhere and often decimated the population. Diphtheria and scarlet fever carried off hundreds of children. Tuberculosis was treated in the home and whole families were exterminated. Expectant mothers were not seen by the physician until the time of delivery and death at childbirth was common. The people regarded hospitals with horror and as a place of last resort; hence many lives were uselessly sacrificed to ignorance and prejudice.

Nursing at this time was at a low ebb. Dr. F. J. Shepherd, in an address delivered to the Montreal General Hospital Nurses' Club, on December 6, 1905, described the wards and nurses of the Montreal General Hospital as they were in 1867 in the following words: "The wards were small and rather untidy; the nurses were Sarah Gamps; good creatures and motherly souls, some,—all uneducated. Many looked upon the wine (or brandy) when it was red. . . . In those days it was with the greatest difficulty that patients could be induced to go into a hospital. It was the popular belief that if they went they would never come out alive. No records were kept. The clinical thermometer had not come into use; the patients had to look after themselves; fresh air was not thought necessary. Armies of rats disported themselves about the wards. . . . Instruments were looked after by a man who assisted in the operating room, and at postmortems in the dead house. Nothing was known of sepsis or antisepsis. Surgeons operated with dirty instruments and septic hands and wore coats which had been baptized for years with the blood of victims."²

But now Canada has met and solved all these problems. Railroads have abolished frontier settlements. Good medical schools are found in most of the large cities. Medical journals, general and special, are in every physician's office. Medical meetings are numerous and frequent. Automobiles conserve time. Traveling clinics come to the physician who is isolated. Community hospitals are at hand, and the tele-

phone brings the consultant to the patient's bedside. Lectures on medicine are to be had by radio.

Pasteur has proved the germ theory of disease. Innumerable writers have established the laws of infection and of immunity. Specific remedies are at hand in the form of serums, vaccines, and drugs. Lister has taught us aseptic surgery and operations are relatively safe. Smallpox and typhoid fever are banished by preventive inoculations. Diphtheria and scarlet fever can be prevented, or cured, if contracted. Patients with tuberculosis are segregated in sanatoriums and a large proportion are cured. Childbed fever is a reflection on the physician. Glandular deficiencies are diagnosed and Nature's failures compensated for by substitution therapy. Dietary deficiencies are met by appropriate foods. Expectant mothers are observed through many months and are saved from death and the babies well started on the journey of life. Specialists abound; they make the diagnosis in difficult cases and outline the necessary treatment. Hospitals are accepted as providing the best environment for the sick, and hence daily restore thousands to health. Verily it sounds like a true Utopia!

In this great medical accomplishment, Canada and her physicians have played a great part. The profession has organized to meet these problems. In the early days our medicine was strictly utilitarian and practical, but in later years has become strongly tintured with science. Canada may take just pride in her physicians. Schools of medicine have appeared and they teach excellent medicine that is practised from coast to coast. The Canadian Medical Association has about 4,000 members. The last census showed the population of Canada to be 8,775,853 with 8,706 physicians. Each year about 400 new physicians are graduated from the medical schools of Canada. The *Canadian Medical Journal* brings tidings of the new advances of medicine to every physician. National and state meetings are held in the larger cities, and meetings of county societies are held in every hamlet. The Canadian Health Association serves from within and protects from without. Public health institutes meet the needs of the community and of the physicians and educate the public in all matters vital to health. Physicians and nurses supervise the health of the children in the schools. Many special societies, such as the Tuberculosis League, the Red Cross, and the

Child Welfare League, help to meet special needs.

Canadian medicine has made great strides in the full-time teaching of medicine and in medical investigation. In days gone by, the fundamental sciences underlying medicine were taught by practitioners. Now in most Canadian schools, as in our own school, the faculty includes a group of men who devote their entire time and effort to the teaching and advancement of these branches. One of the pioneers in this field in this country is with us today, Dr. A. B. Macallum, brother of a former dean of our school and father of our present dean. Such men have done much for Canadian medicine and for medicine in general. The full time system is beginning now to be adopted in some schools, even for the clinical branches, and in this movement also Canada is taking an active part.

Canada's record in the war was superb, but no branch of the Canadian army surpassed her medical department. The excellence of this service was specially commended by the King himself. Nearly every medical student in Canada volunteered. Approximately 1,500 medical officers and 2,000 nurses, with a total personnel of 20,000, served overseas. The Canadian Medical Hospital beds abroad exceeded 35,000. The spirit of the Canadian Medical Service was unsurpassed. The inspired battle cry, "In Flanders Fields," of a Canadian medical army officer, Colonel John McCrae, electrified the Anglo-Saxon race in every corner of the world and was probably one of the determining factors in the outcome of the war.

In medical investigation Canada is more than holding her own. For years our profession has participated in researches of all kinds and some of Canada's contributions have claimed the attention of the entire world. Wherever medicine is practised, Banting's praise is sung.

But among Canada's greatest gifts to medicine must be considered those of her sons, Nature's noblemen, who enriched medicine by their lives and their work. We think naturally of such men as we Londoners have known in days gone by: Moorhouse, Buck, Wishart, Eacles, Moore, Meek, Hodge, Drake, Wilson, Ferguson and others. Of this older group, Dr. Waugh fortunately has been spared. Although there are many such men, three will suffice as illustrative examples. They stand as the type of men who have won for Canadian medicine the respect of the world.

The first is a man well known to most of you, the late Dr. H. A. Macallum, a big man, physically and mentally, genial, jovial and whimsical, one who radiated health and sunshine. He graduated from this school in 1886. He was a graduate student in Baltimore and abroad, and eventually settled down to the practice of medicine in London, Ontario. He was a master-clinician, an inspiring teacher, a friend and advisor to his patients and his students. He practised for the love of practice and taught for the love of teaching. He brought hope and sunshine into the lives of the sick. He elevated the standards of both practice and teaching. To me he was always an inspiring example affording an insight into the greater possibilities of medicine. He represents the highest type of Canadian physician. For years he was the central figure in the affairs of our Alma Mater.

The next picture deals with the scientific achievement of a young physician, once of this city, who at two in the morning was still struggling with a great problem which demanded solution. He was interested in the possibility of finding a substance which would cure diabetes. He had spent the evening reading an article which proved that when the ducts of the pancreas were tied, the gland itself atrophied, leaving intact the islets of Langerhans, the tissue supposed to be concerned in diabetes. He wondered if this was not a starting point for the discovery of a cure for diabetes and as he continued to study the problem he became convinced that he had arrived at the truth. In the morning he eagerly conferred with Dr. Miller and other men in the medical school and elicited their interest. They started him on his search. Realizing the greater facilities and opportunities of larger institutions, they referred him to the University of Toronto, where, with the aid of Dr. McLeod, Dr. Collip and Dr. Best, he produced "insulin," which has become a boon to patients with diabetes throughout the entire world. Banting, a Canadian, working in Canada, has made one of the greatest contributions to medicine, not only of the last fifty years, but of all time.

And finally, Canada has produced the greatest physician of the new world. A comprehensive panoramic view of the life of Osler, which is interesting and inspiring throughout, has been given by Cushing. Certain details stand out in bold relief. In his childhood we see him as one of a large family of children, in a Canadian

parish in the wilderness. From his parents he derived his personality, from his father the pioneer spirit, and from his mother his teaching capacity and his practical outlook on life and medicine. His mother especially merits consideration. In advising him as to a profession in life, she said, "Search your heart for the motive inducing your decision, for remember that God always judges us by our motives while man can only judge us by our actions, and in the Book of Proverbs you will find far better advice than I can give you." He grew up under the influence of three great men, Father Johnson, of Dundas, who created an interest in science; James Bovell, of Toronto, who taught him to browse in the library, and Palmer Howard, of Montreal, who opened to his vision the full possibilities of medicine. Of course, the figure which stands out most strikingly is Osler in his prime as professor of medicine at Johns Hopkins in Baltimore, scholar, teacher, physician, classicist, student of the humanities, reveller in medical lore of all ages, bibliophile, builder of libraries, maker of books, and inspiring teacher, to whom the development of young men was an absorbing passion. He was a keen observer, master clinician, clinical pathologist and clinical investigator, a consulting physician to whose doors came the sick from every part of the continent. In him were combined all the best attributes of a physician and in his day he made Johns Hopkins the Mecca of American Medicine. After leaving and moulding American medicine he was called to England as Regius Professor at Oxford, where he performed the same services for British medicine. In him Canadian medicine furnished the leaven which raised the standards of the profession throughout the world.

Such is the story of Canadian medicine; such, in general, the list of her accomplishments. Canada has received much help in medicine from the outside world, but this she has repaid and in full measure. The needs of the people of Canada, in my opinion, have been as well met by its medical profession as those of any country in the world. Canada has ample reason to be proud of her accomplishments in medicine.

For most of the historical references in this narrative, I am indebted to Dr. John J. Heagerty's interesting and extremely valuable work on "Four centuries of medical history in Canada."

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An Address

ON

THYMIC ASTHMA*

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London

THAT mysterious gland, the thymus, has for some centuries been credited with the capacity of causing disturbances of the respiration. But until Kopp, in the year 1830, nearly a hundred years ago, formulated the conception of "thymic asthma" in explanation of certain cases of paroxysmal dyspnoea in the infant there was no clear idea in any physician's mind as to the nature of the disturbance. Kopp conceived that the thymus from its anatomical relationships required but little increase in size to make it a formidable obstruction to the free passage of air down the trachea. His work has passed into oblivion, but the memorial remains in the synonym of "Kopp's asthma." Thirty years after Kopp had written, Friedleben took up the study of the thymus gland and after elaborate researches into the anatomy, physiology, and clinical pathology announced in a dogmatic fashion that there was no such thing as "thymic asthma." That view held the field for another thirty years, and it was not until the advent of aseptic surgery had set the surgeons afire to discover new worlds for the exploitation of their art that the conception that an enlarged thymus, which was capable of removal, might be the cause of certain cases of asthma again came to the front. About the beginning of this present century there was a renewed flood of literature on the thymus and its diseases, and although this modern stream has never run dry as its predecessors certainly did, yet in the last twenty years there was for a considerable period a distinct slackening in the flood. Recently, and again at almost the normal period of thirty years, there are signs of a further flood.

I propose this evening to ask you to consider briefly four questions. (1) What is the evidence that enlargement of the thymus is a cause of grave dyspnoea in infants? (2) What are the symptoms and signs which can be legitimately interpreted as evidence of the existence of a perilous enlarge-

ment? (3) What are the results of operative interference? And (4) whether operation or some other form of treatment is most desirable?

What then is the evidence that there is a "thymic asthma?" Anatomically speaking, there cannot exist any doubt that a gross enlargement of the thymus gland, such as for example may occur in the case of a malignant growth, can produce a dyspnoea of extreme gravity, but that is hardly the point in dispute. It is held by the supporters of the conception of an asthma due to thymic enlargement that an enlargement sometimes not much in excess of what would be, in the absence of dyspnoea, universally recognized as normal, is sufficient explanation of a dyspnoea. The normal size and weight of the thymus gland is variable, but the best and most careful work of recent years would seem to point to an average of about 15 grammes in the first year of life; the minimum in a healthy child in the first year of life is 6 grammes, and the maximum, also in a healthy child without dyspnoea, may be as much as 40 grammes. It is quite certain that in a number of instances where either operation has been practised, or an opportunity has been afforded of inspection after death from a supposed thymic asthma, the total weight of the gland has been considerably below the higher of these figures. But it has been maintained that in the cases of dyspnoea associated with quite moderate enlargement of the gland there is during life and after death evidence of a flattening of the trachea. To my mind the evidence is extremely unsatisfying. There are a good many cases where this flattening has been carefully sought for and yet not found; there is no case with which I am acquainted where the flattening was sufficiently striking to make it in the least degree probable as a cause of dyspnoea; and, finally, it has been shown experimentally that the degree of pressure necessary to produce flattening of the trachea is far in excess of anything likely to be exerted by a soft structure like the thymus. It is far more likely that the trachea would groove the gland.

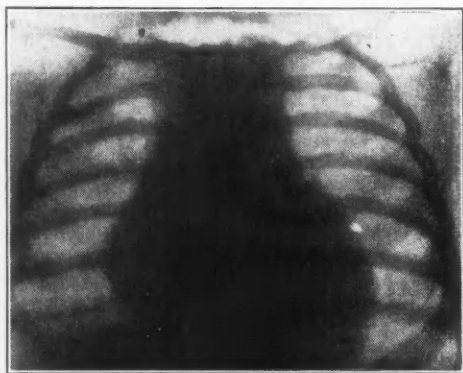
*Delivered before the Academy of Medicine, Toronto, October 2nd, 1928.

Lastly, on this anatomical aspect of the question, the really large thymus glands are found in those children who die suddenly without symptoms of dyspnoea, the mysterious cases of "thymus death" of "lymphatism;" and if there is one thing clear in this mystery, it is that the death can never be attributed to respiratory failure. It is always a sudden cardiac failure. I have actually been present at four such deaths and in each case can testify that there was no sign of respiratory disturbance.

From the purely anatomical standpoint, therefore, there is no evidence that a thymus gland can from mere size, except in the unusual cases of malignant disease, produce respiratory distress.

RADIOLOGICAL EVIDENCE

The existence of a shadow in the region of the thymus gland has been accepted by some authorities as good evidence of enlargement of a pathological extent. That this is not correct has been shown, I think conclusively, by Blackfan and Little, who found shadows which, according to the x-ray interpretation, were indicative of thymus glands in 29 out of 60 infants who were not "suffering from any of the symptoms said to be characteristic of a patient with an enlarged thymus." An American author last year summed up the attitude of certain x-ray enthusiasts in the following words, "If a child has a respiratory



stridor of any degree of intensity, without further examination a roentgenogram is taken, and if there is any evidence of a thymus, this gland is assumed to be the cause. If there is no evidence of a thymus then it is assumed that the roentgenogram did not accurately portray the anatomic situation and the thymus gland is still assumed to be the cause."*

* WASSON, *J. Am. Med. Ass.*, 89: 1025, 1927.

It is quite certain that, as this slide will show you (See Figure) there occur shadows which simulate an enlargement of the thymus and yet are caused by quite other structures.

Radiological evidence of the existence of an enlargement of the gland must be accepted with the greatest caution.

OPERATIVE EVIDENCE

The clinical evidence connecting dyspnoea with an enlargement of the thymus is much more convincing.

Ollivier, of Paris, reports the following case. A female infant was from birth subject to a persistent dyspnoea and on the fourth day of life had an acute attack of suffocation with a convulsion. This attack was repeated at intervals during the next fortnight and always seemed about to be fatal. On examination, the manubrium sterni was seen to project in an unusual fashion; a soft tumour protruded in inspiration above the sternum; there was abnormal dullness to percussion over the projecting part and to either side of it; and a radiogram showed a marked shadow in the position of the thymus. The attacks became so alarming that on the twenty-second day of life thymectomy was performed and a portion of thymus, weighing 15 grammes, was removed with its capsule. The result was excellent; there was no further attack of dyspnoea, and at six months of age the child was normal in every respect.

Such a record is of prime importance, since it seems to establish beyond dispute that there is a condition of dyspnoea due to an abnormal thymus gland which can be relieved by operation. Such results are however by no means common. Ollivier reports another case in which the operation was not followed by any benefit; and in a third instance the thymectomy did not relieve the dyspnoea, and at operation the thymus gland was found of normal size, but the tracheo-bronchial glands were enlarged and causing dyspnoea by pressure, as was established at the subsequent autopsy.

Other operators have recorded both the same brilliant success as Ollivier and the same failures, yet the few successes must be acknowledged to be important evidence in favour of the existence of a real "thymic asthma," unless we can show some evidence that in such cases there is another underlying cause. To this point I shall presently return.

The answer to our first question must therefore

be that, contrary to the opinion of Friedleben there is a "thymic asthma," but that it is an uncommon condition, and does not comprise more than a very small minority of cases of infantile dyspnoea.

What are the symptoms and signs which will enable us to recognize thymic asthma?

The symptoms are dyspnoea, either continuous or intermittent, cyanosis and stridor. Since these may all be due to conditions quite distinct from enlargement of the thymus gland, and since there may be a very large thymus present without any dyspnoea or other symptom, it is clear that there is nothing characteristic in the symptoms to aid us. The physical signs on which stress has been laid: (1) Rehn's sign—protrusion of the manubrium sterni; (2) palpation of the enlarged gland as it rises above the sternal notch during inspiration; (3) dullness to percussion extending beyond the manubrium in the first two intercostal spaces, especially, it is said, to the left; and (4) the radiographic shadow in the expected situation. Of these the first two must be extraordinarily rare. Ollivier saw them in his first case quoted above, but only twice afterwards. In most instances they have been definitely wanting, though looked for. The third sign, dullness over the manubrium and beyond its margin may be due to other causes, and I have already remarked on the radiographic fallacies.

I have been looking for one of these cases of "thymic asthma" for nearly thirty years, and though I have seen several cases where it was legitimate, or, rather, obligatory, to consider the possibility, I have never yet met with a genuine example.

The following case is that in which I was almost convinced until the denouement. "A boy of five months had a history of making a gurgling noise in his throat since birth. He became cyanosed when crying. He had marked respiratory stridor, with recession on inspiration above the sternum. But there was no thymus to be palpated. There was dullness to percussion over the manubrium and on both sides, and the x-ray gave a shadow in the expected position. While the question of operation was under consideration a red spot appeared on the right side of the neck just above the clavicle. This rapidly assumed the character of a pointing abscess and on incision a quantity of green pus was evacuated which grew a pure growth of pneumococcus. The abscess lay below the sterno-thyroid muscles and had pushed the trachea a little to the left.

With the evacuation of the pus the dyspnoea ceased. A later x-ray showed the disappearance of the abnormal shadow.

Such a case suggests a plausible explanation of the phenomena of so-called "thymic asthma." If in this instance the pneumococcal infection actually progressed to pus formation, it is, I hold, a legitimate inference that in other instances the inflammatory process may stop short of the purulent stage, and the enlarged swollen infected glands which are the cause of the symptoms of dyspnoea and cyanosis may slowly subside, with complete relief of the symptoms. Confirmation of this hypothesis, which attributes the symptoms to the lymphatic gland enlargement rather than to the thymus gland, is afforded by a consideration of the comparative frequency with which enlarged tuberculous glands in the upper mediastinum are the cause of more or less urgent dyspnoea. Additional confirmation appears from the fact that both in Ollivier's and Parker's series of operative thymectomies a large percentage of the cases diagnosed as suffering from thymic asthma were eventually shown to be suffering from enlarged tuberculous glands. And further, I would suggest that the recorded favourable results of x-ray treatment, in diminishing the radiographic shadow and relieving the attacks of dyspnoea, are to be attributed, not to their action upon a thymus whose enlargement, as I have tried to show, is in these cases a figment, but to their well-ascertained influence upon chronically inflamed lymphatic gland tissue.

The immediate and subsequent results of operative interference can easily be summarized. When the condition is correctly diagnosed the result of a partial or apparently a total thymectomy is admirable; complete relief immediately from a condition which threatens life. If, however, we consider the number of cases in which thymectomy has been done for the relief of dyspnoea, without for the moment regarding the eventual findings, it is clear that the mortality is heavy. Of Ollivier's cases 15 of 39 patients died. If fifty cases collected by Parker 17 died. It must be added that few of the deaths could be attributed to the dyspnoea for which the operation was undertaken, but that most were caused either by the tuberculosis which was the original cause of the dyspnoea or by infection of the lungs following the operation. Further, except in a few instances, the relief to the dyspnoea has not been either striking or immediate, and it is fair to recall the fact that infantile dyspnoea

from whatever cause has a remarkable tendency to cease spontaneously with the lapse of time. Lastly, none of the thymectomized children who made a recovery have been recorded as suffering from any symptoms which could be attributed to thymus deficiency. From that point of view the operation seems to be perfectly safe.

Our last question was whether operation is the treatment to be recommended. To this there is the alternative of x-ray treatment, and,

so far as can be judged, where diagnosis is so difficult, the enlargement of the thymus can be effectually treated by x-rays, with a maximum of benefit and a minimum of risk. There can be no doubt in my opinion that we should discourage the ambitions of the surgeon to enter this field, save in the exceptional case where there is an urgency which permits of no delay, and a reasonable probability of correctness in our diagnosis.

A REVIEW OF THE PROGRESS AND RESULTS IN FORTY-ONE CASES OF PARESIS AND TABO-PARESIS TREATED WITH TRYPARSAMIDE*

By E. C. MENZIES, M.D.

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IN May, 1923, the use of tryparsamide for cerebrospinal luetic disease was begun at this clinic, and by May, 1925, forty-one patients had their treatment with this drug and mercury completed. This group comprised mainly general paresis, formerly regarded as practically hopeless material so far as results from any treatment were concerned. The reason for this paper lies in the fact that the time elapsing between the termination of treatment in the whole number of these forty-one cases and the present report in February, 1929 is in some cases over five and in the shortest instance nearly four years. While the absolute permanence of the results cannot yet be foretold, it has seemed to the writer that definite valuable light as to the efficiency of this treatment is shown by what has happened to these patients in the period quoted. We have not stopped to review the history of tryparsamide as this is already well known.

During the above named period forty-one cases were treated in which the diagnosis of general paresis or of tabo-paresis was beyond dispute. Five more cases are excluded from this report in which there might possibly be some quibble raised as to the diagnosis; also five more cases to whom we afterwards gave malaria. Without exception all the patients at the commencement of treatment were very much deteriorated mentally; very few were in good physical

condition, nearly all having lost considerable weight.

Our results in these forty-one cases are briefly: ten discharged; fourteen still living, with the disease seemingly more or less arrested, but in whom the mental degeneration has been so great as to preclude any hope of their entering active life again; ten of these are in residence in the hospital; four of them are being cared for at their own homes; the remaining seventeen are dead. Of the ten discharged one was killed in a street-car accident a few months after discharge. The remaining nine have been either seen or heard from within the last year and they are all working and doing well.

The alterations in the serological picture caused by tryparsamide can best be shown by the following table:

Serological Picture	Discharged	Chronic	Dead
Unimproved.....	0	0	8
Improved.....	8	8	7
Practically Negative...	2	4	2
Negative.....	0	2	0
Total.....	10	14	17

In the practically negative class the most of them were negative so far as the Wassermann test is concerned. Generally speaking, the cells and gold-curve were also negative, but there was usually some slight suspicion of an increase in globulin. On the whole it will be noted that tryparsamide has not succeeded in rendering the serological tests negative in many cases; also, that the improvement in the serological picture of the class able to work outside and

*From a clinic at the Verdun Protestant Hospital, Verdun, Que., under the direction of Dr. C. A. Porteous, Medical Superintendent, who originated this work here in 1923. His help in the preparation of this paper is gratefully acknowledged.

apparently do well is no greater than it is among the patients of the chronic class, who will always be inmates of an institution. Of many patients, particularly the chronic ones, we have complete records for a period of five years or better, including a series of from eight to seventeen complete spinal-fluid examinations on each patient.

One notices when looking over these charts that there have been periods when the serological tests were negative, but in nearly every case subsequent punctures showed a return of enough positive features to put the case in one of the other groups. This fact makes us feel a little doubtful as regards the continuance of a normal serological state in the two who are now absolutely negative; next year may see their return to the positive class. However, in practically all the discharged and chronic cases the serological picture has remained permanently much improved. The Wassermann test is often negative or doubtful; the gold-curve is very low, usually no more than two in any tube; the cells are nearly always below eight; there is very little albumen or globulin; that is to say, a very marked and apparently fairly permanent improvement in the serological picture has taken place in nearly all these cases.

TECHNIQUE AND ROUTINE

We give from the first a maximum dose of tryparsamide, namely 3 gm., and have never had an unfavourable reaction from this amount except in one instance, but investigation showed that the fault lay in the distilled water, which in this case happened not to be distilled! From our experience of nearly six years, and in more than two hundred cases, we are inclined to believe that most of the reactions attributed to tryparsamide may be explained by some fault in the technique rather than in the drug itself. A careful examination of the fundi is always made before the first dose is given; also, if the patient is co-operative, a field of vision should be determined, and the eyesight checked by means of the regular optical charts. The above procedure should be repeated at least every three weeks. For all practical purposes the slightest pallor or contraction of the field is a contra-indication to the use of tryparsamide. By watching the discs after every dose we were able in one case to give ten doses of tryparsamide with no further ill-effect; this we feel is not to be recommended, as a general practice. On these forty-one cases

we used one grain of mercury salicylate with the tryparsamide once a week. Since completing this series we have changed this procedure and now give bismuth with the tryparsamide, in place of the mercury, and believe that we get better results.

The course of treatment on all these patients, both chronic and discharged, was a long, slow, and tedious process. The average number of injections has been thirty-five, requiring, with the necessary rest period, well on to a year to complete. With this amount of drug administration there is always anxiety lest optic atrophy develop and laborious precautions lest this occur unnoticed must always be taken. The improvement in the mental condition of the patient is usually very slow, and in the meantime he is hard and troublesome to take care of. We are satisfied, from observing similar cases treated with malaria, that some of the cases which died before tryparsamide had time to get in its work could have been saved by the non-specific protein therapy. Also, we think that malaria would have put some of the chronic cases in the discharged class for the same reason, viz., it secures results much more quickly, before intellectual deterioration sets in.

At the risk of seeming pedantic we would like to emphasize one point on behalf of that too often little considered individual, the patient himself. We refer to the use of small intravenous needles and also small lumbar-puncture needles. From the patient's viewpoint treatment with tryparsamide is at best an extended tiresome business; a great many injections have to be made and treatment has to be controlled by frequent lumbar punctures. With an eccentric tipped syringe and a very small needle, no larger in fact than a large hypodermic needle, the resulting wear and tear on the vein is very little and course after course can be given in the same vessel. This is especially advantageous when treating women who so often have small, easily damaged veins. Anyone who has had the experience of the patient's only suitable vein going bad after a few injections will appreciate the value of this point. Again, a small needle obliges the operator to give the drug very slowly, which is certainly not a disadvantage. The patients suffer no discomfort whatever, and they turn up bright and smiling the next week with no trepidation. Very small lumbar-puncture needles do not lacerate the muscles and tendons of the back to nearly the same extent as do the large ones.

There is very little subsequent soreness, and repeated punctures meet with no objection from the patient. It is, of course, taken for granted that the operator is sufficiently skilled to perform the puncture itself without any pain to the individual most concerned in it.

CLINICAL COURSE UNDER TREATMENT

Ten out of forty-one is only a moderate percentage of arrests, yet, considering the deteriorated type of the group as a whole, we believe it is much better than could be obtained from the use of any other arsenical drug; in fact, many of these patients, and some of them the worst both physically and mentally, had already received, before being committed to us, large amounts of salvarsan and mercury. Tryparsamide is, however, distinctly inferior in its results to those we secured in a similar number of precisely similar cases treated by malaria, where we had sixteen satisfactory remissions out of forty cases treated.¹ The first improvement noticed under tryparsamide was in the physical condition. The patients took on weight, their colour improved, their skin cleared up, and they ate better; all this usually before any improvement appeared in the mental symptoms, that is to say, the mental improvement was always secondary to the physical betterment. In this respect the clinical course under tryparsamide is similar to that under malaria. In this connection it must not be forgotten that arsenic is still an important ingredient in most of our tonic preparations, and, while watching these patients improve physically under the use of this particular arsenical drug, one cannot but get the impression that a part at least of the improvement seen is due to the tonic action of the drug rather than to its spirochaetocidal action. Owing to this fact, more than any other, we now use tryparsamide mainly as a follow-up treatment after malaria; in cases where the physical condition is so poor as to preclude inoculation, we use tryparsamide to try and render the patient able to withstand a series of chills. Serologically, the first effect was nearly always a reduction in the number of cells; then usually the gold-curve, if it were of the paretic type, became lower and assumed the appearance of the so called "tabetic curve;" this phenomenon is so constant that in this clinic we speak of the curve thus produced as the "treated" curve. The Wassermann test and the globulin are usually the last to be permanently affected. There is another point which is of interest, *i.e.*, the

delayed action of tryparsamide on the serological phenomena. This delayed action occurs in many, and can best be described by quoting a typical case.

A male, forty-five years of age, commercial traveller, was admitted May 13th, 1923, with a history of strenuous treatment with salvarsan and mercury previous to admission. He weighed only ninety pounds and had to be carried into the ward. There was incontinence of urine and faeces, and he was much demented. The blood Wassermann test was four plus, cerebrospinal fluid Wassermann, four plus. The cells in the fluid were 80 per cmm.; albumen, two plus. From May 8th, 1923, to June, 1924, he received thirty-one three-gramme doses of tryparsamide. During this time he gained forty pounds in weight, the incontinence disappeared, and, mentally, his condition was such that he was able to be discharged on trial on June 2nd, 1924. From this time to December, 1924, he received, in the outdoor clinic, fourteen more doses of tryparsamide. In other words, he had received a total of forty-five three-gramme doses. On December 2nd, 1924, his blood Wassermann was still four plus; cerebrospinal fluid was two plus—four plus. The cells, 9; albumin plus; gold curve, 1122321100. We did not see the patient until twenty-one months later, October 15th, 1926, when he visited us. He weighed one hundred and fifty pounds, seemed in excellent health, had been back in his former commercial post for over a year, and was doing well. There were no neurological signs, except Argyll-Robertson pupils, and his serological findings were:—blood, 0-0; cerebrospinal fluid Wassermann, 0-0; cells, 7; albumen and globulin, 0; gold-curve negative; Fehling's test, negative. No treatment whatever had been given in the meantime. Over a year later, December 2nd, 1927, the serological findings were again positive, but we have had reports from him since and he is still carrying on satisfactorily outside.

As noted before, the mental, serological, and neurological improvement usually waits on the physical; indeed, in the first three aspects we have often noticed an apparent exacerbation after the first two or three doses, *e.g.*, the patients will seem to be more excited; if there is a history of convulsions then is the time to expect a recurrence; if the patients are mentally able to do so they themselves will complain of more headache and more unsteadiness; if they are subject to tabetic crises and lightning pains they will complain of increases in these. In two cases we saw crises develop after two or three doses of tryparsamide where the occurrence of these had been denied before. We have also seen tabetic pains which had apparently been much relieved by malaria reassert themselves under the subsequent use of tryparsamide. In fact we feel that tryparsamide is a very poor drug to use in cases of tabes, especially where pain is a prominent feature. A consideration of the above facts has led us to use tryparsamide as a diagnostic agent, and we have already reported our findings in regard to this².

OPTIC ATROPHY

Optic atrophy is, of course, the great contra-indication, and, to our mind, a very serious one.

As noted before, a very careful examination of the eyes should be made before treatment is started, and this must be repeated at very short intervals, else serious results may be looked for. In our own series due to these precautions we had only one case of actual blindness and that fortunately occurred in a hopelessly demented patient who has since died. We had, however, to cease treatment in twenty-five per cent of this series, owing to a beginning pallor of the disc. This twenty-five per cent were all either among the chronic type, or the seventeen who have died. In fact, this necessary cessation of treatment may have been the reason why some of them are now dead or hopelessly demented. With the discontinuance of the drug the atrophy has apparently not increased.

We wish to emphasize the fact that tryparsamide cannot be given in a routine manner as is salvarsan. If it is, disastrous results to the eyesight will very likely occur. After malaria therapy has been used, however, tryparsamide may be given with much more safety, as among our first forty malarial cases, subsequently treated with tryparsamide, we only had two cases of optic atrophy begin as a result of the arsenical.

In conclusion, we give two examples of typical serological charts showing the variations which occurred during the years the patients have been under observation.

The patient is still a resident of the hospital and will probably always remain so. He is healthy and a willing worker, but is disoriented and untidy. It will be noted that in June, 1926, his spinal serological picture was negative, that it again became slightly positive in March, 1928, but that it now, February, 1929, shows a negative reaction. This will probably be no more permanent than the first negative result.

This patient has been discharged from this hospital since 1924. He has worked ever since and is apparently doing well. In October, 1926, his serological findings were negative, but in December, 1927, the curve and cell-count were again positive, also the blood. Malaria was advised on that date, but the patient said that he could not afford the time. He has been seen quite recently and is still working. Physically he is well and no abnormalities can be detected in his mental reactions. Another lumbar puncture would, however, be interesting. The varia-

CASE NO. 1

Date	Gold Curve	Spinal Fluid Examination		Cells	Globulin and Albumen	Blood Examination	
		Wassermann Alc.	Choles.			Wassermann Alc.	Choles.
July, 1923.....	not done	++++	++++	?	++++	++++	++++
October, 1923.....	not done	++++	++++	10	++++	++++	++++
January, 1924.....	not done	++++	++++	10	++++	++++	++++
February, 1924.....	5555543000	++++	++	?	++	++++	++++
June, 1924.....	not done	+++	++++	6	not done	++	++++
July, 1924.....	2233320000	—	—	9	+	not done	—
October, 1924.....	0011221000	—	—	5	+	++++	++++
November, 1924.....	1233221000	+	++	8	+	not done	—
November, 1924.....	1111110000	+	+	3	+	not done	—
January, 1925.....	4322110000	—	—	10	—	++++	++++
May, 1925.....	0000000000	—	+	4	slight	++++	++++
August, 1925.....	0000000000	++	++	9	+	not done	—
October, 1925.....	1111100000	—	—	2	—	not done	—
June, 1926.....	0000000000	—	—	—	—	0	+++
March, 1927.....	0000000000	—	—	6	+	0	+++
March, 1928.....	1122210000	—	—	3	—	not done	—
February, 1929.....	0000000000	—	—	4	—	0	+++

CASE NO. 2

Date	Gold-Curve	Spinal Fluid Examination		Cells	Globulin and Albumen	Blood Examination	
		Wassermann Alc.	Choles.			Wassermann Alc.	Choles.
May, 1923.....	not done	++++	++++	80	++	++++	++++
November, 1923.....	not done	++++	++++	2	++	++++	++++
January, 1924.....	not done	++++	++++	7	++++	++++	++++
February, 1924.....	0144430000	+++	++++	80	++	++++	++++
May, 1924.....	not done	++++	++++	3	++	++++	++++
June, 1924.....	not done	++++	++++	26	not done	not done	not done
November, 1924.....	1122421100	++	++++	9	+	not done	—
January, 1925.....	4322211000	—	—	7	+	++	++++
October, 1926.....	0000000000	—	—	7	—	—	—
December, 1927.....	0003444000	—	—	30	+	+	++++

tion in the cell count is very unusual and to us unexplainable.

SUMMARY

1. Out of forty-one patients treated by tryparsamide and mercury alone, between May, 1923, and May, 1925, ten have been brought back to sanity of at least four years' standing and had their physical health restored. Out of forty similar cases treated at a later date by malaria and tryparsamide we had sixteen patients restored to a like degree; the results under malaria and tryparsamide as compared with those from tryparsamide alone are sixty per cent better, also they were much more rapidly accomplished.

2. In none of the ten who achieved satisfactory remissions under tryparsamide is the serological picture negative at the last examination, but in every case there has been a great and, so far, permanent, improvement.

3. We believe tryparsamide to be a great improvement on salvarsan in cases of cerebrospinal lues.

4. The results in tabes after tryparsamide have been very disappointing, especially in securing relief from pain. We are thoroughly

convinced malaria is better from this viewpoint.

5. Laborious precautions must always be taken to detect a beginning optic atrophy, and the danger from this source is very real and acute; we had to stop treating twenty-five per cent of this series because of its imminence and we had one case of total blindness. In the malarial series only two developed.

6. As a result of our nearly six years' experience we now believe that tryparsamide should only be used:—

(a) Where the patient's physical condition is too poor to withstand the chills of malaria.

(b) As a follow-up treatment after malaria, except in tabetic types where originally the crises were very severe; optic atrophy is much less likely to occur in previously treated malaria cases.

Credit to Dr. C. P. McCabe, then Assistant Medical Superintendent, now at North Berwick, Maine, U.S.A., and to Miss A. M. Fish, Serologist, Montreal, is given for their contributions to this work.

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THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS*

By J. S. BURRIS, M.D.

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THIS paper, on the treatment of pulmonary tuberculosis, is based on the series of cases, numbering twenty-five to date, operated on by Dr. H. L. Burris, Dr. Willoughby, and myself.

It has been a recognized principle for many years that rest is essential to the successful treatment of all acute inflammatory diseases. In typhoid fever we put the patient to bed, giving an easily digested diet to enable the inflamed and ulcerated areas in the intestinal tract to heal. In cases of acute appendicitis, seen too late for early operation, we put the patient to bed, withhold all food, giving rest to the gastro-intestinal tract. When we suture a wound, we draw the edges together and put the part at rest, in order that nature may heal, as she always does, with the formation of scar tissue. So too, in the ordinary treatment of pulmonary tuberculosis,

we insist on rest in order that the diseased area may heal through the same mechanism. But, we now know that rest, even under the most favourable conditions, is not always sufficient, and surgery is now assisting in the cure of these hitherto unfavourable cases. Lest you may think that the surgical treatment of pulmonary tuberculosis is entirely new, I may remind you that more than one hundred years ago Mr. Carson, in England, suggested that many cases of this disease would yet be advantageously treated by surgical measures. It was this idea that was later developed by Brauer, in Germany, who in 1906, suggested surgical collapse, but it remained for Sauerbruch to develop the surgical technique which has made the operative treatment of pulmonary tuberculosis a matter of practical interest to every physician, and has enabled medicine to offer a cure to many of these hitherto hopeless cases.

*Read at the meeting of the British Columbia Medical Association, at Kelowna.

In order to secure rest for our tuberculous cases, we put them to bed and endeavour to keep the lung quiet until the inflammatory processes have been replaced by fibrous tissue. This rest to the lung may be further supplemented by employing some form of "compression therapy." There are two methods of compressing the lung in use to-day. The first, and the one more extensively used, is by injecting air into the pleural cavity, spoken of as "artificial pneumothorax." This was first used by Forlanini, of Pavia, in 1894, and later by the late John B. Murphy, of Chicago, in 1898, working independently of the former, but it was not established as a routine procedure in selected cases in America until 1910 or 1912. These men, and especially Murphy, recommended that this method be used in all stages of the disease and held that the quantity of gas introduced should be as large as the patient could tolerate without dyspnoea, and held that "if compression is indicated, *real* compression is indicated." We now know that high pressure is not only, not necessary but is actually harmful. Clinicians to-day are injecting small quantities of air into the pleural cavity at frequent intervals, extending over a period of months or even years. In this method, compression is not permanent and the lung re-expands.

It is more particularly of the second method that I wish to speak. In this the nerve supply of the diaphragm is destroyed by exposing the phrenic nerve in the neck, through an incision to the outer side of the sterno-mastoid muscle, and dividing it on the scalenus muscle as it passes downwards and inwards to the thorax. It is not sufficient simply to divide this nerve, but we must avulse it, in order to get all its accessory branches which go to supply the muscle. This causes the diaphragm to rise in the thorax where in a very short time it becomes fixed, splinting the lung. We reduce the side of the hemithorax, by removing sections of ribs, after the method of Sauerbruch, in which an incision is made in the back and from 1 to 6 inches are cut from each rib. This incision starts at a point midway between the acromion and spinous processes, one and a half inches behind the clavicle, continuing downwards and inwards to a point on the fourth rib, one and a half inches from the spinous processes, until the eighth rib is reached, then curving downwards, outwards and forwards, to the tip of the tenth or eleventh ribs. The flaps are reflected and the

muscles are divided. The periosteum covering the ribs is divided and stripped off, leaving the ribs bare. The ribs are cut at a point as close to the transverse processes as possible, removing from the first rib, one to one and one-half inches; from the second, three to four inches; from the third, four to five inches; from the fourth to the eighth ribs, six inches; from the ninth, four inches; from the tenth, three inches; and from the eleventh, two to three inches. The total amount of rib resected varies from thirty-five to seventy inches. This operation is done in two or three stages, at intervals of ten or more days. Special care is given to hæmostasis, and the muscles and skin are sewn up separately. A large rubber drain is put into the wound, for forty-eight hours and the chest is supported by three broad strips of adhesive plaster. A nurse who has had previous training in this work is put on the case for four or five days, with special instructions to support the side when the patient coughs, and to encourage expectoration. By this method of resection of the ribs, combined with the action of the muscles of the trunk, the ribs become more parallel with the spine, thus diminishing the capacity of the thorax far more than would be accounted for by the mere length of bone-sections removed. More important than the collapse is the immobilization which follows. This is aided by a bridge of bone which forms between the divided ribs, uniting them into one rigid whole. The operation makes a great and permanent change in the form and capacity of the hemithorax, reducing the volume of the lung by from 300 c.c. to nearly 1,000 c.c. This operation is called "extrapleural thoracoplasty." This, combined with the paralysis of the diaphragm, as described, effectually puts the hemithorax at rest, a condition essential for the healing of pulmonary tuberculosis. This surgical procedure is the most striking operation which has been devised for the relief and cure of pulmonary tuberculosis. Compression in this method is absolutely final and re-expansion is impossible.

INDICATIONS AND CONTRA-INDICATIONS

The most suitable age is said to be between fifteen and forty-five years, and in our own series we have adhered very closely to this, the ages being between seventeen and forty-eight years. The younger the patient, the softer and more pliable are the thoracic walls, so small resections of ribs suffice. The matter of years, however, is far less important than the probable

or known ability to react to trauma, the heart's action, the blood pressure, and, more especially, the mental attitude towards operative procedures. By virtue of the heart being in the left hemithorax, the left lung is smaller than the right, and this is advanced by some authorities as one reason for believing that the left lung can be compressed with less danger to the patient than the right. Another factor is that the right, which is larger, can more easily carry on respiration. Bull reported 75 operations; 46 were on the left side, with a mortality of 2.2 per cent; 29 on the right with 26 per cent of deaths. This is not borne out in our series of cases. There were on the left side 13 cases, with 4 deaths, a mortality of 30 per cent; 12 cases on the right with 4 deaths, a mortality of 33.3 per cent. There are, however, so many conflicting factors in the individual case that it is difficult to draw accurate conclusions.

Of special significance is the stage of the disease. The older the lesion the better the chances of cure. That is, the more fibrous or productive cases are more favourable than the recent and progressive ones. It will be seen at once that this involves the question of individual resistance, which must always be very carefully appraised. The best type of case for this form of treatment is that with fibrosis and cavitation, with a tendency towards arrest, occupying a considerable part of one lung, in which pneumothorax cannot be done. Twenty-one out of the twenty-five cases in our series belonged to this group. Only one had fibrosis without cavitation. Out of twenty cases only four cases showed a clear opposite lung. In spite of this, three died, and one developed signs of activity which are now clearing up. Of the three who died, one case, a woman, gave a history of diabetes extending over eight years. She died after the completion of the second stage. The second case died from extension of the disease in the good lung. The third had an open pyopneumothorax in the affected lung. The fourth died of severe diarrhoea one week after the first stage was done. In view of a previous history of indefinite abdominal symptoms we believe we were dealing here with an activation of a pre-existing intestinal focus. If the disease is confined to the apex, Coffee, of Portland, believes that the first rib only need be removed, but it is better to do the complete operation, even though the lesions in the lower lobe appear insignificant. Fever, sweating, and profuse expectoration are not

contraindications, if the lung on the opposite side is reasonably sound.

Next in frequency are grouped those more acute cases with extensive *progressive* disease on one side, in which a pneumothorax cannot be produced. The prognosis in this class of case is not so good. Here we do a phrenic nerve avulsion first, watch the case, and if the lung is healing, postpone the operation of extrapleural thoracoplasty until a comparatively stationary condition is reached. If in spite of the phrenicotomy the disease advances and the opposite lung remains free, we do thoracoplasty.

In cases with hæmorrhage again artificial pneumothorax should have the preference, as it is a much less severe therapeutic measure. Three cases in our series were operated for this condition. In one case the whole lung was involved. As this was our first case done in 1921 the history perhaps may be given in detail:

CASE REPORT

The patient, W. M., male, aged 46, was admitted to Tranquille Sanatorium on December 5, 1920. He gave a history of pulmonary tuberculosis since 1916. His sputum was positive, and he had periodic hæmorrhages, numbering about sixty in all. Examination on admission showed bilateral disease more marked on the left side. The production of pneumothorax was attempted for a time on the left side, but it was doubtful whether air was in the pleural space, so it was discontinued. As the patient was not doing well on rest, he was transferred to the Royal Inland Hospital for thoracoplasty on September 30, 1922. This operation was done in two stages and the patient made a good recovery. He gained in weight and his sputum became negative. He was up and around on exercise and felt very well, though short of breath on exertion, before his discharge from the Sanatorium in May, 1925. He went to live in Vancouver and in 1926, a year later, died of acute pneumonia.

This man did so well that other patients in the Sanatorium asked to be allowed to have the operation, though they were considered by Dr. Lapp and his associates to be hopeless cases. Some even insisted on having the operation, though advised that they would probably die.

There are, however, two conditions in the hæmorrhagic cases which interfere with this treatment. The first is the liability to extensive intra-pleural adhesions, and, secondly, pulmonary consolidation, both of which tend to prevent full pulmonary collapse. Here do a phrenicotomy and later a thoracoplasty.

A large quantity of sputum is no contraindication. The amount will be greatly reduced.

As a result of the general improvement that takes place, distant foci may be favourably affected. Tuberculosis of the larynx is not a contraindication. On the contrary, it improves and often clears up completely.

In extensive disease of the spine the operation is contraindicated, but, if slight, and in the dorsal region, the operation favours fixation of the spine.

In the presence of intestinal tuberculosis we must decide whether the progressive character of the disease is due to the pulmonary or the abdominal lesion and be governed accordingly.

In deciding upon the thoracoplasty the condition of the good lung must be carefully con-

sidered. Some insist that the disease must be confined to one lung, but this is so rarely found that such a standard deprives many of their only chance of recovery. What is more important is to decide whether the better lung will be able to function. Here the point must be decided by the internist and the surgeon. In estimating the possibilities of the better lung, the physical signs must be considered in the light of the x-ray appearances. In a lung there may be well marked physical signs, such as râles on auscultation, yet it may be clear roentgenologically. In all such cases we must remember the possibility of adventitious sounds being transmitted from the advanced lesion on the opposite side. But in the presence of acute disease with progressive toxæmia, when the lesion is yet so early that no clear radiological evidence is available, thoracoplasty on the side of the earlier lesion must not be denied the patient. Radiological evidence of apical fibrosis with an absence of adventitious sounds on auscultation is no contraindication to a thoracoplasty on the other side. The same statement applies to basal fibrosis, with this reservation; in this type of lesion, because of greater amplitude of respiration, re-activation is more likely to occur. In all these border line cases activation may occur in the better lung, and in distinguishing this from a simple post-operative pneumonic process radiological observation is of great value.

When there is empyæma, closed or open, repeated aspirations should be tried, and if it fails, or if the puncture wounds become infected, thoracoplasty is indicated. In the face of such a complication we must be prepared to face a more tardy and a more stormy convalescence, in view of the infection already present in the pleural space.

PREPARATION OF THE PATIENT

The patient should be under careful observation for two or three days before operation. The amount of sputum should be measured, and, if large, the cavities should be emptied by postural treatment each morning, including the morning of the operation. The blood-pressure, pulse, and respiration should be noted. Patients with low blood-pressure are not good risks, and the operation may have to be done in three stages.

The blood coagulation time should be estimated, and calcium lactate for three days before

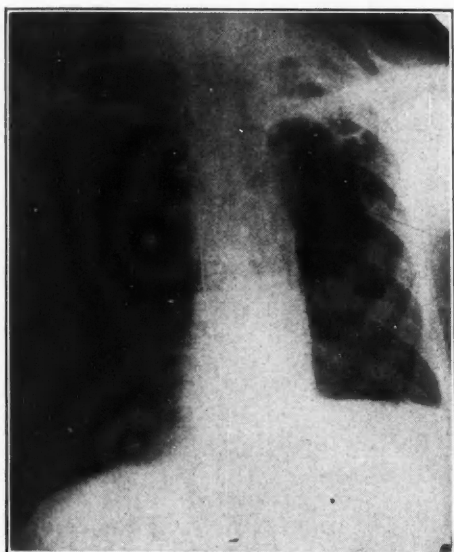


FIG. 1.—The chest before operation.

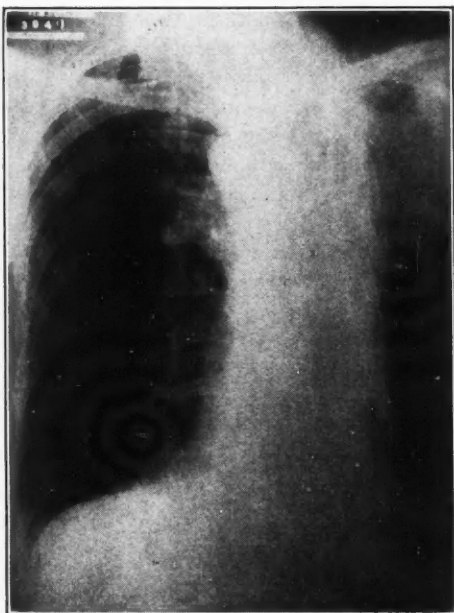


FIG. 2.—The chest after operation.

operation is probably a wise measure in all cases, and if the patient has a general anæsthetic, a calcium chloride injection may be given on the table. All our patients have been digitalized as a preoperative measure.

ANÆSTHESIA

The most difficult part of the operation is the removal of bone from the first rib, because this rib is deeply placed and has large blood vessels and nerves in close proximity. With increasing experience we were able to complete the operation under local anæsthesia alone. Of the last nine cases, six have been completed in this way without the addition of gas and oxygen.

RESULTS

Out of twenty-five cases, seventeen are alive and leading reasonably comfortable lives. Dr. Lapp's opinion is that only one would have survived without the operation.

In conclusion, I wish to stress again the need for the careful selection of patients for operative treatment. It requires the most careful co-operation between physician and surgeon. In this respect we have been particularly fortunate in having the advice and assistance of Dr. Lapp and his staff at Tranquille. Dr. Lapp early became interested in this line of treatment, and his enthusiasm and continued interest has made our work possible.

DUPUYTREN'S CONTRACTION

A REVIEW OF THE LITERATURE AND A REPORT OF A NEW TECHNIQUE IN SURGICAL TREATMENT

A PRELIMINARY STATEMENT

BY A. CLIFFORD ABBOTT, F.R.C.S. (EDIN.),

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CONTRACTURE of the palmar fascia was first described in detail by Dupuytren in 1831. Since that time many theories as to its cause have been advanced, but to date no satisfactory cause can be offered. Treatment is also very unsatisfactory, and it is with great diffidence that I offer in this paper an entirely new method of surgical treatment, which I believe offers in the majority of cases by far the greatest chance of a satisfactory result. It is hoped that my technique published in this paper will be taken up by orthopædic and plastic surgeons, and improved so as to suit all grades of cases.

ANATOMY

The palmar fascia invests the muscles of the palm, and consists of a central, lateral and medial portion. The central portion occupies the middle of the palm, and is of great strength and thickness. It is triangular in shape. The apex is continuous with the transverse carpal ligament, and the tendon of the palmaris longus muscle is inserted into it. As it extends distally it spreads out like a fan, and proximal to the

heads of the metacarpal bones, divides into four slips, one for each finger. Each slip again divides. The central superficial slip passes distally and is inserted into the skin of the palm and finger. The deeper portion divides into two slips, one of which passes on each side of the finger and is inserted into the fibrous sheath of the flexor tendon. From the sides of these processes offsets are attached to the transverse metacarpal ligament. This forms an arch on the palmar surface of each metacarpal bone through which the flexor tendons pass. The lumbrical muscles, digital vessels, and nerves lie in the intervals between these slips. This is a point to remember in the surgical treatment, as injury to these structures may seriously interfere with the end-result. Numerous strong transverse fibres bind the separate processes together proximally. (See Fig. 1). The central portion is intimately connected with the skin by dense fibro-areolar tissue.

ETIOLOGY

The etiology is very obscure. It is essentially a disease of middle life and old age. It occurs

more often in men than in women, and it is in no way dependent on a man's station in life. Apert¹ reports the observation of a family with Dupuytren's contraction in four generations. It affected only the men, and it appeared earlier each successive generation. Krogius² points out that the etiology must explain two

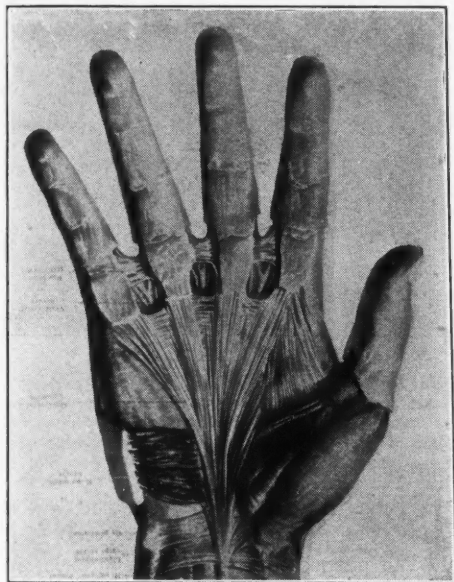


Fig. 1.—From Spalteholz' Atlas of Anatomy.

factors: (a) hereditary incidence; (b) its symmetrical arrangement on the ulnar side of the hand. He believes the condition is a developmental disease, due to disorders of growth in the superficial palmar muscles. Schubert³ believes that the underlying factors are a hereditary tendency to a fibrous hyperplasia, and a neuropathic influence arising from some lesion of the ulnar nerve. Anderson⁴ states that occupation has been greatly overrated as a cause, while Adams⁵ believes it always depends on a constitutional rather than a local cause. A commission appointed in 1912 to look into the cause of Dupuytren's contraction in laceworkers in Nottingham arrived at no definite conclusion. Sir Robert Jones,⁶ however, believed it was primarily a predisposition in an individual, with palmar irritation as the exciting cause. Wainwright⁷ got excellent results following treatment with thyroid extract and believes the contracture is due to an endocrine disturbance. Ely⁸ lays stress on associated septic teeth and tonsils. Byford⁹ found septic teeth present in 34 per cent

of cases in his series. Tubby¹⁰ suggests that it is a fibrositis or a local expression of some subtle change in body metabolism. Other authors consider Dupuytren's contraction as a persisting sequel to lead poisoning.

The contracture is usually limited to the central portion of the palmar fascia. The fascia and its prolongations undergo a chronic, plastic inflammation. This is followed by a thickening and shortening of the longitudinal processes. It loses its glistening white sheen, and becomes grey and closely attached to the overlying skin. The tendons are not involved, but bony changes may occur in advanced cases.

The process begins with a nodular thickening in the palm, usually just proximal to the base of the ring finger, and the overlying skin becomes thickened and tender. Full extension becomes impossible and the finger gradually becomes drawn into the palm. More than one finger may be involved in the process. When the fingers are extended the distal bands of palmar fascia stand out as dense hard ridges in the distal one-third of the palm in the line of the axis of the fingers. The skin becomes very adherent to the underlying thickened fascia, especially at the natural skin creases.

Byford⁹ found in his series of cases that the contraction was limited to the palmar fascia in 35 per cent of cases. In 5 per cent it was limited to the digits, and in 60 per cent the combined type was present. The maximum contraction usually was complete within one year, in his experience, but may go on for years in very chronic cases.

The treatment is surgical, palliative, mechanical measures having been found totally inadequate. Tubby¹⁰ states that open operation is often followed by a wirelike scar, frequently as disabling as the original contracture. He states that the two essentials in the treatment are, first: removal of every portion of the affected fascia; and, second, prevention of scar-tissue formation by the use of fibrolysin. The latter is obsolete and has been given up. Wainwright⁷ found thyroid extract helpful. Apert¹ treated one case with radium emanation. The contraction of the fascia relaxed, leaving only a cord which did not interfere with the use of the hand. Gill¹¹ treated three cases by excision of all the diseased tissues and transplanting a piece of fat from the thigh into the space between the tendon

sheath and the skin. He emphasized the value of transverse incisions entirely.

The following case is an illustration of a contracture following the receipt of an injury which was treated unsuccessfully by local excision, and at a second operation by wide excision of all diseased fascia, followed by an immediate transplantation of a piece of fascia lata with an almost complete anatomical and a complete functional result.

D. C., aged thirty-four, a lineman with the Hydro-electric Company. On September 17, 1926, he fell and forcibly dorsiflexed the middle and ring finger of his right hand. At the time he had very severe pain in the palm, which lasted for about twenty minutes. Following this, he developed a burning sensation in the central portion of the palm. This was followed by a thickening and nodular development in the palmar fascia, the skin becoming puckered and closely adherent to the underlying fascia. The typical contracture appeared, involving the ring and middle fingers. Unfortunately, a photograph was not obtained at this time.

On November 19, 1926, a local incision was made over the affected area, and as much fascia as appeared to be diseased was removed. The wound healed by primary union. Two weeks after operation, contracture again became evident. At the end of five weeks the condition was as bad as ever, if not worse. December 29th, the old scar was excised along with a little poor skin on each side. The surrounding skin of the palm was carefully dissected up, and in spite of all the care taken it was buttonholed in one place, so closely was it attached to the underlying fascia. All newly-formed scar tissue was carefully removed and all diseased fascia. The fascia was followed upwards almost to the digital clefts, and laterally until one was sure by its glistening appearance that all the diseased portion was removed. Great care was taken not to injure the underlying digital vessels and nerves. The tendon sheaths were exposed and were seen to be not involved. Careful haemostasis was carried out.

The wound was covered over and the thigh opened by a linear incision. The hand was again exposed and a piece of fascia lata, fashioned to fit the space left by removal of the abnormal palmar fascia, was applied, overlapping by about one-quarter of an inch. The fascia was loosely tacked down with plain catgut to the remaining palmar fascia. The skin was carefully closed with interrupted silkworm-gut sutures. A pad was placed in the palm and a firm bandage applied. The wound in the thigh was closed.

On January 7, 1927, the patient was discharged from hospital with the hand in excellent condition. There was a slight serous discharge from the button-hole that had been made accidentally. On January 10th the stitches were removed; the wound had healed by primary union. During the patient's stay in hospital, the hand was kept fully extended on a well-padded palmar splint. After two and one-half weeks, gentle active and passive movements were started. Considerable stiffness, due to thickening in the palm, was present at the end of the month. When the fingers were flexed in the palm the patient experienced a crackling sensation as if the fascia transplant was doubling up. With gentle movements, no work, and baking, this gradually improved. At the end of ten weeks the patient went back to light work, at which he remained for three months, and then resumed his usual occupation.

The final result, two years later, is shown in Fig. 2. The thickening in the palm has entirely disappeared, the scar having contracted and flattened to the level of the

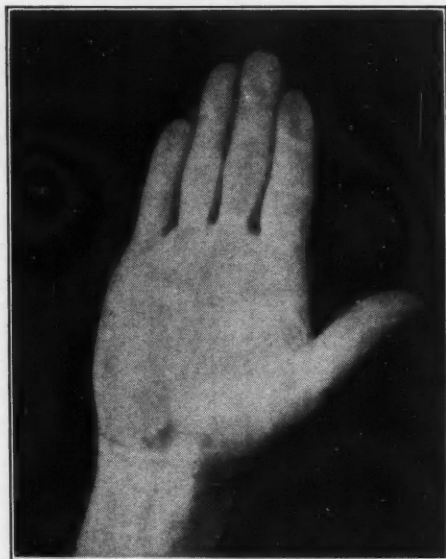


FIG. 2.

surrounding palm. There is no tenderness on pressure over the scar, and all movements are perfect. The patient is at work as usual, using a heavy pair of wire cutters constantly, and he states that he does not know he has been operated on.

SUMMARY

1. The purpose of the present publication is to present an entirely new surgical method of treatment of Dupuytren's contraction of the palmar fascia.
2. The author appreciates the fact that this publication is based upon one solitary case specially suitable for fascia transplantation. The contracture also followed soon after an accident in a young man, which is unusual. More severe grades of contracture would be more difficult to attack, and in fact, might be unsuitable.
3. In the severe types of contracture where the skin is greatly involved and might slough when stripped up, skin grafting, using the whole thickness of skin, may be employed.
4. The important points in the transplantation of fascia are:
 - (a) To obtain as fine a piece of fascia as possible. A piece of the rectus sheath would do very well.
 - (b) To have the transplant larger than the defect in the palmar fascia, so allowing for shrinkage.
 - (c) Merely to tack the fascia in place and not strangulate any portion of it by tight sutures.

(d) Moreover, there must be no tension in the transplant.

(e) To have complete hæmostasis.

5. To keep the hand on a splint for about two weeks before any movements are started.

6. The patient should be kept from work for at least three months, so as to avoid all source of irritation. Light work is advisable for a further period of three months.

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THE RELATION OF THE ALTITUDE OF THE SUN TO ITS ANTIRACHITIC EFFECT*†

BY FREDERICK F. TISDALL, M.D. (TOR.), AND ALAN BROWN, M.B. (TOR.),

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EXPOSURE of the body to sunshine is now universally accepted as the most effective means for the prevention and cure of rickets. Solar radiation which reaches the earth's surface is composed of invisible heat rays, which have wave lengths longer than 760 millimicrons (a millimicron is one millionth of a millimetre in length); visible light, which varies in length from 760 to 380 millimicrons; and invisible ultraviolet rays, which range from 380 to 290 millimicrons. Rickets is prevented and cured by exposure to ultraviolet rays not longer than 302, or, possibly, 313 millimicrons.¹⁻⁴ Rays longer than 320 millimicrons certainly produce no discernible effect.⁵ As the shortest rays in sunshine are 290 millimicrons, and the longest ones effective in the prevention and cure of rickets 302 or 313 millimicrons, it is evident that the effective solar rays are limited to a very narrow zone of the shortest ultraviolet rays present in sunshine.

In a study of the ultraviolet end of the solar spectrum Fabry and Buisson⁶ found that the intensity of this portion of the spectrum falls

off very rapidly, being only one millionth as great at 290 as at 315 millimicrons. This very rapid falling off in the intensity of the solar spectrum is due to absorption by the earth's atmosphere and has been attributed to one of its constituents, namely ozone. This gas is situated largely in the outer limits of the atmosphere. In the lower layers of our atmosphere the effective rays are still further reduced by any smoke, dust and moisture present.

A marked seasonal variation in the prevalence of rickets has been noted by all who have studied the disease. In accord with this, we⁷ have recently demonstrated by animal experiments that the antirachitic effect of summer sunshine in Toronto is approximately eight times as great as that of winter sunshine. Dorno⁸ in the Swiss Alps, using photoelectric cells, found the ultraviolet content of the midday sun in July to be ten times greater than in January. It is thus evident there is a marked seasonal variation in the antirachitic effect of sunshine.

The question arises "What produces this variation?" Could it possibly be due to a variation in the emission of ultraviolet rays by the sun? Pettit⁹ has shown that the amount of ultraviolet rays radiated by the sun does vary, but he found this variation to bear no relation to our seasons. In fact, he found a greater amount of ultraviolet rays emitted in December, 1925, than in July, 1924.

Could this effect be produced by seasonal

* From the Laboratories of the Sub-Department of Pediatrics, University of Toronto, and the Hospital for Sick Children. This work was aided by a grant from the Department of Health of the Province of Ontario.

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changes in the amount of ozone in our atmosphere? It has been shown by Fabry and Buisson⁶ that the greater part of the ozone is located in the most elevated strata of our atmosphere, probably above 50 kilometres. It is there produced by the action on oxygen of solar rays shorter than 200 millimicrons. However, rays longer than 200 millimicrons decompose the ozone, so that a state of equilibrium is established. Dobson, Harrison and Lawrence,¹⁰ at Oxford, measured the amount of ozone in the atmosphere over a period of some months. The seasonal variations found by them, however, do not coincide with the changes in the effectiveness of the short rays found by us. It is very improbable, therefore, that a seasonal variation in the amount of ozone accounts for the seasonal changes in the antirachitic effect of sunshine. From measurements made of the amount of smoke, dust and moisture in the atmosphere there is no evidence that changes in their concentration could account for the seasonal variation in the antirachitic effect of sunshine.

Fabry and Buisson⁶ found that the intensity of the ultraviolet rays reaching us from the sun decreases rapidly when the sun departs from the zenith, and that this decrease is most marked with the short wave lengths. With observations made at Marseilles, on June 7, 1920, they found rays 292 millimicrons in length did not come through at all until 10.31 a.m.,

when the sun reached an altitude above the horizon of 62 degrees. Waves 296 millimicrons in length were over 28 times as strong when the sun was at an altitude of 68 degrees (11.25 a.m.) as when it was at an altitude of 40 degrees (8.22 a.m. and 3.46 p.m.). Also Dorno⁸ at Davos, Switzerland, found that the shortest ultraviolet rays at midday in July were 12 millimicrons shorter than those found in December. The obvious explanation of these findings is that in the early morning and late afternoon, or in the winter months when the sun is low in the sky, the rays have to pass through a greater portion of our atmosphere than at noonday or in the summer months. In other words, we would expect to find the antirachitic effect of sunshine largely dependent on the altitude of the sun.

In Table I is given the changes produced in the inorganic blood phosphorus and the percentage of ash in the bone of rats fed on a rachitogenic diet and exposed to the sun's rays during the spring and autumn of 1927 and the spring of 1928. The rats were exposed daily for 2 hours at midday for a period of 4 weeks, then killed and examined.⁷ It is seen that a marked increase occurred in both the inorganic blood phosphorus and the percentage of ash in the bones of the rats killed on February 28, 1927. In 1928 an increase occurred in the percentage of bone ash on February 27th, and an increase in both the blood phosphorus and bone

TABLE I
ANTIRACHITIC EFFECT OF SUNSHINE ON RATS FED ON A RACHITOGENIC DIET.
THE RATS WERE EXPOSED TO SUNSHINE 2 HOURS DAILY AT MIDDAY FOR 4 WEEKS.

<i>Rats Exposed to Sunshine</i>			<i>Controls Kept Inside</i>	
<i>Rats Killed</i>	<i>Inorganic P. per 100 c.c. of blood</i>	<i>Per cent of ash in bone</i>	<i>Inorganic P. per 100 c.c. of blood</i>	<i>Per cent of ash in bone</i>
1927				
Feb. 7	2.6	37.5	1.8	26.7
" 14	2.4	36.7	1.6	32.4
" 21	3.2	39.9		
" 28	4.5	51.0	1.4	32.0
Mar. 7	4.9	43.6	2.0	39.6
" 14	4.5	51.0	1.9	34.6
1928				
Feb. 6	2.1	38.0	1.6	35.6
" 13	2.6	35.7	1.3	29.8
" 20	1.9	37.6		27.0
" 27	2.6	43.4	1.3	27.1
Mar. 5	5.4	48.9		32.7
1927				
Sept. 27	3.4	48.0	1.9	
Oct. 3		43.2	1.2	31.2
" 10	4.2	46.6	1.4	34.6
" 17	6.8	44.4	2.7	33.3
" 24	3.3	39.5	1.4	30.0
" 31	2.8	40.0	2.4	33.8
Nov. 14	2.4	38.8	1.6	32.6

ash in the rats killed on March 5th. In the autumn of 1927 we find that a drop occurred in the percentage of bone ash and a moderate reduction in the blood phosphorus in the rats killed on October 24th. A farther reduction occurred in the blood phosphorus of the rats killed on October 31st.

In order to determine whether the anti-

rachitic effect is dependent on the altitude of the sun, and not on possible seasonal changes in the atmosphere, we exposed rats at different times of the day throughout the month of March, 1928. Dr. C. A. Chant, Professor of Astronomy, University of Toronto, kindly calculated for us the time each day during March at which the sun reached the altitudes of 25,



FIG. 1.—Roentgenogram of rat on rachitogenic diet for 4 weeks; kept inside; killed April 2, 1928.

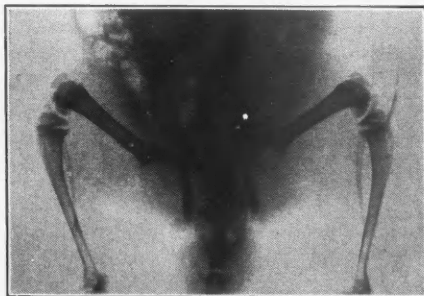


FIG. 4.—Roentgenogram of rat on rachitogenic diet for 4 weeks; exposed in the morning for 2 hours daily until sun reached a maximum altitude of 40 degrees; killed April 2, 1928.



FIG. 2.—Roentgenogram of rat on rachitogenic diet for 4 weeks; exposed in the morning for 2 hours daily until sun reached a maximum altitude of 35 degrees; killed April 2, 1928.



FIG. 5.—Roentgenogram of rat on rachitogenic diet for 4 weeks; exposed in the afternoon for 2 hours daily starting with the sun at a maximum altitude of 40 degrees; killed April 2, 1928.

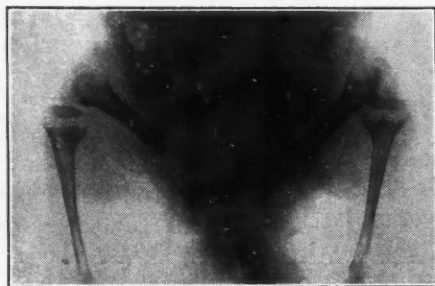


FIG. 3.—Roentgenogram of rat on rachitogenic diet for 4 weeks; exposed in the afternoon for 2 hours daily starting with the sun at a maximum altitude of 35 degrees; killed April 2, 1928.

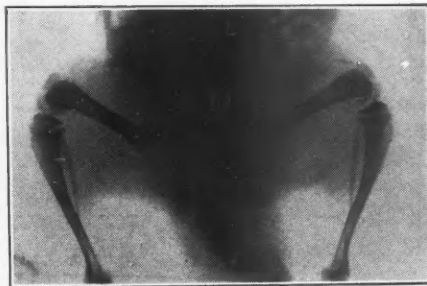


FIG. 6.—Roentgenogram of rat on rachitogenic diet for 4 weeks; exposed in the morning for 2 hours daily until sun reached a maximum altitude of 45 degrees; killed April 2, 1928.

30, 35, 40 and 45 degrees. Naturally, this was a different time each day for each altitude. Four rats were placed in each of eight cages. Cage 1 was exposed daily for 2 hours being placed outside at a time so that 2 hours later, when it was taken in, the sun had reached an altitude of 25 degrees. This means that the rats in cage 1 received rays from the sun to a maximum altitude of 25 degrees. Similarly, the rats in cage 2 received rays from the sun up to an altitude of 30 degrees; cage 3, 35 degrees;



FIG. 7.—Maximum daily altitude of the sun throughout the year at the latitude of Toronto ($43^{\circ} 40'$).

cage 4, 40 degrees; and cage 5, 45 degrees. On account of the latitude of Toronto, the maximum altitude of the sun for cage 5 was slightly under 45 degrees until March 17th,

after which time the maximum of 45 degrees was reached each day. In the afternoon cage 6 was put out with the sun at a maximum altitude of 40 degrees and taken in 2 hours later; cage 7 with a maximum altitude of 35 degrees; and cage 8 with a maximum altitude of 30 degrees. The times on two days of the month are as follows:— On March 6th; cage 1 was put out at 7.19 and taken in at 9.19. Cage 2 out at 7.55, in 9.55; cage 3, out 8.37, in 10.37; cage 4, out 9.44, in 11.44; cage 5, out 10.28, in 12.28; cage 6, out 1.13, in 3.13; cage 7, out 2.18, in 4.18; and cage 8, out 3.02, in 5.02.

On March 31st: cage 1 was put out at 6.25 and taken in at 8.25; cage 2, out 6.55, in 8.55; cage 3 out 7.27, in 9.27; cage 4, out 8.02, in 10.02; cage 5, out 8.43, in 10.43; cage 6, out 2.41, in 4.41; cage 7, out 3.16, in 5.16; and cage 8, out 3.48, in 5.48.

During the four weeks of the experiments the 8 cages were put out or taken in at 448 different times of the day, ranging from 6.25 in the morning to 5.48 in the afternoon.

After 4 weeks the rats were killed and the inorganic blood phosphorus and percentage ash in the bones determined.⁷ The results are given in Table II. Roentgenograms of the hind legs were also taken (Figs. 1 to 6).

TABLE II

ANTIRACHITIC EFFECT OF SUNSHINE WITH THE SUN AT DIFFERENT ALTITUDES. THE RATS WERE EXPOSED TO SUNSHINE FOR 2 HOURS DAILY, EACH CAGE AT A DIFFERENT PERIOD OF THE DAY DURING THE MONTH OF MARCH, 1928.

	Maximum Altitude Reached by Sun Degrees	Time of Day	Inorganic Blood P. per 100 c.c. Blood	Pcr Cent of Ash in Bones
Cage 1	25	A.M.	2.1	38.8
" 2	30	A.M.	2.4	36.8
" 3	35	A.M.	2.5	43.9
" 4	40	A.M.	3.5	43.3
" 5	45	A.M.	2.9	43.0
" 6	40	P.M.	2.9	44.5
" 7	35	P.M.	2.4	36.7
" 8	30	P.M.	2.0	36.4
Control Cage	Inside	..	1.2	29.6

TABLE III

MAXIMUM ALTITUDE OF SUN ON DATES WHEN CHANGES OCCUR IN ANTIRACHITIC EFFECT OF RAYS

Changes in Antirachitic Effect observed in Rats killed on:	Max. Altitude of Sun 2 weeks before	Max. Altitude of Sun 1 week before
Feb. 28, 1927	33	35
Feb. 27, 1928	33	35
Mar. 5, 1928	35	37
Oct. 24, 1927	39	37
Oct. 31, 1927	37	36

COMMENT

The results given in Table I show a marked change in the antirachitic effect of sunshine on the rats killed on February 28th, 1927; February 27th to March 5th, 1928; and October 24th to October 31st, 1927. These changes in the antirachitic effect really occurred one to two weeks previous to the dates given, as it requires this time for a change to evidence itself in rats. In Table III is given the maximum altitude of the sun one and two weeks before these dates. It is thus evident that under the conditions of our experiment a marked increase occurred in the antirachitic effect of sunshine when the sun reached an altitude of about 35 degrees in the spring, and a marked decrease occurred at about the same altitude in the fall.

From a survey of Table II, it is seen that the rats exposed to rays of the sun up to an altitude of 40 and 45 degrees in the morning (cages 4 and 5) and 40 degrees in the afternoon (cage 6) had a higher concentration of blood phosphorus than those receiving solar rays from an altitude up to only 25, 30 and 35 degrees. Similar results were obtained with the percentage of bone ash with the exception of the rats in cage 3 which received solar rays in the morning up to an altitude of 35 degrees, and which had a percentage of ash in the bones at the higher level found with the rats in cages 4, 5 and 6. At first glance these results are not as striking as might be expected, when compared with the results given in Table I. It should be remembered, however, that these rats received rays up to certain maximum altitudes during the morning and afternoon, and during this time the sun was rapidly rising or falling, so that the duration of the exposure to rays at and just below the maximum altitude was very short. On the other hand with the midday exposures (Table I) the sun was at its height, and naturally the rate of rise and fall just before and just after the midday was very slow. Consequently, the duration of the exposure of these rats to rays at and just below the maximum altitude was much longer than with the rats exposed in the morning and afternoon.

It is of interest to note that the antirachitic effect of the sun in the autumn diminished rapidly at an altitude of 36 to 39 degrees, while in the spring it increases at an altitude of 33 to

37 degrees. This means that the spring sunshine is slightly more effective than the autumn sunshine. Also, the results in Table II suggest that the morning sunshine is slightly more effective than the afternoon sunshine. Figures furnished by the Dominion Meteorological Bureau, situated within a mile of the hospital, show that differences in the amount of cloudiness could not have accounted for the results obtained. The probable explanation of our findings is that the atmosphere is clearer in the spring than in the fall, and also clearer in the morning than in the afternoon.

From the results recorded in Tables I and II we conclude that there is a marked increase in the antirachitic effect of the sun's rays when the sun reaches an altitude of about 33 degrees. The difference obtained in the spring and fall results is very slight when compared to the marked changes in the altitude of the sun in Toronto throughout the year (Fig. 7).

In Table I of the article by Fabry and Buisson⁶ is given information from which can be calculated the relative intensity of the different ultraviolet rays with the sun at different altitudes. This calculation for the sun at 30 degrees and at 35 degrees was kindly made for us by Dr. H. P. Gage, of the Corning Glass Works. It indicates that there is no sudden increase in the intensity of any particular wavelength, but a general increase ranging from about a threefold increase at 302 millimicrons to an eightfold increase at 294 millimicrons. From these results it would appear that the increased antirachitic effect we obtained with the sun at 35 degrees is due to the general increase in the intensity of the rays ranging from 302 to 294 millimicrons in length, rather than to the presence of shorter rays which did not get through with the sun at the lower altitudes. Previously we⁷ felt that the increased effect was probably due to short rays which only get through with the sun at the higher altitudes. We now believe there is more evidence in favour of the former view. It should be noted that Fabry and Buisson did not actually make their determinations with the sun at 30 and 35 degrees altitude, but the intensity of the different wave lengths were calculated from the information given by them. It would be preferable, of course, if the actual determinations had been made.

DISCUSSION

A study of the geographical distribution of rickets in view of our results is particularly interesting. Before discussing this, however, we must consider certain fundamental factors concerned with the production of the disease. It must be remembered that, although there may be very effective sunshine in a district, if the patients do not get outside and receive this sunshine it will do no good. We would expect to find rickets more prevalent in a country with a cold climate where the infants cannot get outside readily than in one with a warmer climate, even if situated in the same latitude. Also, if the air is badly polluted by smoke and dust, which are factors under the control of man, the effectiveness of the rays will be markedly diminished. The value of certain contributory factors in the prevention of rickets may assume prior importance, as is the case with the antirachitic vitamine in certain northern countries, where it is consumed in large quantities in the form of fish liver. In view of the multitudinous factors known to influence the development or prevention of this disease, we would not expect the geographical distribution of rickets to fit in with any hard and fast rule concerning the altitude of the sun. Nevertheless, it is surprising how closely the geographical distribution of rickets does coincide with our observations of the effectiveness of the sun's rays from an altitude of 35 degrees and over.

A most thorough survey of the geographical distribution of rickets has been made by Dick.¹¹ He has pointed out that rickets is either unknown or exists in a mild form in Australia, India, Japan, parts of China, all of Africa, Jamaica and California. Williams¹² recently reported that rickets is very rare in New Orleans, U.S.A. The absence of rickets in these places is quite striking in view of the presence of other conditions which in the temperate zone apparently result in the production of the disease. The minimum seasonal altitude of the sun at these places is as follows.* The most southern part of Australia 30 degrees; Northern India 31 degrees; the middle of China 32 degrees; the most southern part of Africa 33

degrees; Jamaica 50 degrees; San Francisco 30 degrees; Los Angeles 33 degrees; and New Orleans 37 degrees. It is seen that at many of these places the minimum seasonal altitude of the sun is slightly less than 35 degrees. However, as rickets requires one to two months to develop, this lower altitude which is only present for a short time does not result in the production of the disease. It is evident the minimum seasonal altitude of the sun does not go below 30 to 35 degrees in the districts where rickets does not develop, in spite of the presence of other conditions favourable to the development of the disease.

Rickets to-day occurs largely in Europe and North America between the latitudes of 40 and 60 degrees. The minimum seasonal altitude of the sun at 40 degrees north latitude is 26 degrees. In Glasgow, Scotland, the minimum seasonal altitude of the sun is 11 degrees, and for six months of the year the altitude is below 35 degrees. In London, England, the minimum altitude is 16 degrees and below 35 degrees for five months of the year. In Boston, Mass., the minimum altitude is 23 degrees, and below 35 degrees for four months of the year; while in Baltimore, Md., the minimum altitude is 27 degrees and below 35 degrees for three months of the year. As we have found a marked diminution in the antirachitic effect of the sun's rays when the altitude of the sun is below 35 degrees we should be able to predict for any city the period of the year during which rickets will probably develop.

In many rural districts of the north temperate zone and in the southern part of New Zealand in the south temperate zone, rickets is very rare, although the altitude of the sun is below 35 degrees for some months of the year. It might be argued that this is contrary to the results of our experiment. We would point out, however, that our results simply indicate that, under the conditions of our experiment, when the altitude of the sun is below 35 degrees the antirachitic effect is on a much lower plane than when the altitude of the sun is above 35 degrees. It is probable that with man a much smaller amount of antirachitic rays is necessary to prevent or cure rickets than with rats on our severe rachitogenic diet. Therefore, in regard to infants and children, when the altitude of the sun is below 35 degrees, the antirachitic effect although markedly diminished may still be quite sufficient

* The minimum seasonal altitude of the sun at any place can be calculated by subtracting the latitude from 66° 30'.

to prevent the development of severe rickets, provided that the rays are unobstructed by smoke and there is a reasonable exposure of the patient to these rays.

TABLE IV

TIME OF DAY AT WHICH THE SUN IS AT THE ALTITUDE
OF 35 DEGREES AT TORONTO
(LATITUDE 43° 40')

Date	Standard Time	
	A.M.	P.M.
April 15	8.57	3.37
May 1	8.32	3.56
May 15	8.17	4.10
June 1	8.07	4.23
June 15	7.55	4.30
July 1	8.09	4.33
July 15	8.16	4.29
Aug. 1	8.29	4.18
Aug. 15	8.42	4.01

For Daylight Saving Time add one hour.

During the hot summer months it is inadvisable to expose infants to the heat of the sun at midday. We have been accustomed in Toronto to expose infants before 10 a.m. and in the latter part of the afternoon during the summer. The time of day at which the sun reaches an altitude of 35 degrees in Toronto has been kindly calculated for us by Prof. C. A. Chant, Department of Astronomy, University of Toronto. His figures are given in Table IV from which it is evident that infants may be placed outside at any time from 8 to 8.30 in the morning, to 4 and 4.30 in the afternoon, and thus receive rays with the sun at an altitude of 35 degrees or more. These times apply only to Toronto, but they can be calculated for any place.

SUMMARY

1. A marked increase occurs in the antirachitic effect of sunshine when the sun reaches an altitude of 35 degrees or more.

2. A study of the geographical distribution of rickets shows that rickets is uncommon, or exists

chiefly in a mild form, in those places where the minimum seasonal altitude of the sun is not below about 35 degrees.

3. Conversely, severe rickets is chiefly encountered in those cities where the altitude of the sun is below 35 degrees for some months of the year.

4. The period of the year during which rickets will probably develop can be calculated for any city in the world. The duration of this period may be altered, however, by the prevention of exposure of patients to highly effective sunshine on account of inclement spring weather or other factors.

Our thanks are due to the Department of Health of the Province of Ontario for a grant in aid of the expense of this investigation, and to the Honourable Dr. Forbes Godfrey, Minister of Health, for his interest in this work and the authorization of the grant from his department.

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NATURE'S MASTERPIECE.—In a course of lectures at the Royal College of Surgeons Sir Arthur Keith said that man's brain, with all its failings, represented Nature's masterpiece. Recently a distinguished Viennese neurologist, Professor Constantin Economo, had made a more exact census than any made hitherto of the living units within the cortex, or rind, which was the essential part of the human brain. He found that a European with a brain of 48 oz., which was a common size, had in the neighbourhood of 14,000,000,000 living units, or

neurons, as they were termed, in the grey matter or cortex of his brain. Though mere mass was a very insecure guide to capacity, the fact remained that mass did usually count. We were all more or less impressed when we sat down to do business with big-headed men, especially if they had also strong bodies and a powerful expression. Sir Arthur finds a degree of resemblance between the organization of the brain and that of a newspaper office.

THE TREATMENT OF FRACTURES OF THE JAWS*

BY FULTON RISDON, M.B., F.A.C.S., D.D.S.,

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FRACTURES of the jaws, including the superior maxillary and mandible, are becoming more frequent, largely due to the automobile and aeroplane, but, needless to say, similar fractures were very common during the war, and considerable experience and information was gained from the treatment of these cases in large numbers. On the Canadian Service, in the hospital at Sidcup, England, a great many cases were treated over a period of three years, and as this was only a small part of the cases under treatment there, one could conservatively estimate them at between six and seven thousand. These figures are mentioned merely to suggest that many types of treatment would be planned and carried out, and that very likely a good general plan would be adopted which could be applied to most cases. The history of a fracture is of importance and the careful taking of it is quite frequently overlooked, because, generally speaking, a fracture is obvious. But fractures in the region of the surgical neck and ascending ramus, involving the temporo-maxillary joint, are frequently overlooked, and, if a careful history is taken, the cause of the force applied, such as being kicked by a horse, or being thrown violently to the ground by lightning stroke, or some other force applied directly to the mental process, would suggest at once a fracture, frequently bilateral, of the ascending ramus. The fracture in the body of the mandible as a rule is easy to detect, provided there is some displacement, but there may be multiple fractures where displacement is considerable on one side, but scarcely visible on the other, due to the fracture through the centre of the masseter muscle, or internal pterygoid. We make it our practice to examine each case carefully before x-ray examination is requested, and make every effort to detect one or more fractures and determine their exact position, so that the area through which fracture has

occurred may be indicated to the x-ray laboratory. As a routine we suggest that postero-anterior and lateral stereoscopic views of the entire skull be taken as a spot plate, and other positions are requested, according to the fractures. We do not require x-rays to tell us there has been a fracture, or what position it is in, but rather to tell us what is in the line of fracture, teeth, or fragments of bone, or foreign bodies of any description. Needless to say, the foreign bodies should be removed before reduction of the fracture is attempted, but occasionally teeth may be retained in the line of fracture if they are necessary for splinting, but with this reservation, that they will delay healing as a rule and will very likely have to be removed in two weeks' time.

The displacements are due to the upward pull of the masseter and pterygoid muscles and the downward pull of specific gravity, and of the mylohyoid, genio-hyoid, genio-hyo-glossus, and other inframandibular muscles, but if the fracture is in the middle line the fragments are frequently brought to a closer position, due to the pull of the mylo-hyoid and specific gravity.

Fractures, then, of the lower jaw are similar to other fractures and are treated along the usual lines, namely, the reduction of the fracture and the immobilization of the parts, but in the treatment of these fractures there is a difference because of the teeth. If the patient has a more or less full complement of teeth, the occlusion of the teeth serves as a guide in the reduction of the fracture. By that we mean, that, if the lower jaw is fractured and the upper jaw is intact, and the lower jaw is brought up to its proper relationship with the upper jaw, the best possible position is thereby attained. This holds for fractures more especially in the anterior part of the mouth, but if the fracture occurs on the ascending ramus it is sometimes necessary to depress the ascending ramus and hold it in position with some mouldable material, such as dental compound, or gutta percha, before bring-

* Read before the Section of Surgery, Academy of Medicine, Toronto, Dec. 18, 1928.

ing the anterior part of the lower jaw into the proper occlusion with the upper teeth. When the fracture is through the surgical neck of the ascending ramus one is confronted with these problems; whether the condyle is forced completely out of the glenoid fossa and if so may it be reduced; whether it should be removed by open operation at this time; or whether it should be allowed to heal in its abnormal position, probably to be removed at some subsequent time, so that the jaws may separate and overcome the bony ankylosis. We have had many of these cases where the fracture has occurred through both the condyles with considerable displacement, and in some cases we have not been able to reduce the dislocation of the head of the condyles in a satisfactory way. These cases have been followed for some time without noting any marked limitation of movement, except in a few cases in children, where they have fallen down stairs and the fracture has at the time been overlooked.

These cases require very little hospitalization, and morphine is given from the standpoint of shock and some kind of bandage used for the first few hours to support the fractured mandible, but let me say at once that I have never found that bandaging is of any service except as a temporary support as the patient can open his mouth to the extent of 1 inch at any time when the firmest bandage has been applied, with the possible exception of the elastic or rubber bandage. We prefer to treat these cases on the second or third day, for by this time the method of splinting the lower teeth to the upper has been fully considered and frequently the wiring of individual teeth, which will be described later, will suffice, while in other cases an impression of the teeth in each fragment will have to be taken separately, and splints cast of victrola metal with lugs attached. This latter method we believe to be the best, but it adds to the expense as well as to the delay in the treatment of the fracture. If a rigid splint is placed in position as early as the second or third day it will seldom be necessary to drain the neck as is so common when the splints have not immobilized the parts.

A general anæsthetic is seldom necessary, if the case is seen early. In fact we feel that a general anæsthetic in the presence of a septic mouth should seldom be given and, if so, it

usually complicates the treatment of these cases. Further, the patient should be encouraged at the very earliest opportunity to be out of bed and preferably at his home.

As in all cases of fractures, some form of splinting is necessary, and the more rigid or fixed the splints can be made, the better the results to be expected.

All cases may be conveniently divided into two classes, dentulous and edentulous. In treating a dentulous case, the teeth and their position in relation to the upper jaw are of the greatest importance. This is what is called occlusion of the teeth, and in most cases it is the best guide, as the upper jaw may be used as a splint if the fracture is carefully studied from the standpoint of occlusion. All fractures of the lower jaw are compound, and for that reason wiring or plating is seldom used, so we must depend on some form of splinting the teeth to hold the fragments in position. If the lower jaw is fractured in three places, with or without considerable displacement, an impression of the teeth in each fragment may be taken, and after making a metal cast with lugs on the outer surface, they may be cemented to the teeth separately and with a light pressure they may be drawn up to meet a similar cast appliance cemented to the upper jaw and held in that position until union has occurred. That we believe to be the best method, but there is another method which is less expensive and which can be adapted to most cases where the teeth are present. A piece of bronze wire, about fourteen inches long, is doubled and twisted on one end, thus making a loop on one end and leaving two free ends. These free ends are inserted between two teeth, one wire being carried distally and the other mesially around these teeth and twisted on the outer or buccal surface around the loop that we mentioned. A number of these loops can be applied to the teeth in the upper and lower jaws, and, when ready, may be brought together with ordinary silk. We prefer silk ligatures to wire ligatures, because silk is hygroscopic. Another method is to twist some wire around certain teeth in the lower jaw and another wire around some teeth in the upper and then to attach the long ends together by twisting, but the former method mentioned is to be preferred. Another method which is of use is to attach a piece of German silver wire (gauge 20

or 22) to the upper teeth, extending from molar to molar and attaching a similar wire from the outer or buccal surface of the lower teeth, and then to ligate these two wires together. There is still another method. This is to make a rubber inter-dental splint and cement the upper and lower together, thereby holding the fragments in a firm position. There are many other plans which have been advocated, but those mentioned above should be sufficient for any case where the teeth are present.

In treating the edentulous mouth, where the fracture is not compound, wiring through the bone fragments may be considered, but there is a better method, we believe. This is to use the patient's denture or some material which would fit over the lower ridge, and by circumferential wiring, by which we mean wiring completely around the bone and denture, to hold the fragments in position. If the mouth is edentulous and the patient is wearing a denture, the artificial teeth may be held together by wire and inserted in the mouth and a head-band well covered with cotton, so adjusted that a rubber dam attachment may be placed beneath the chin and tied to the head-band at each side, thereby holding the jaw well up in position.

Fractures of the upper jaw are best treated by the construction of a cast splint to fit the upper teeth. Attach a 13 gauge wire to the outer surface of the casting, and let it project from the angles of the mouth backwards as a loop toward the ear on each side. To this loop is attached a rubber or factory-cotton bandage which passes over the parietal bones or the vault of the skull to a similar loop on the opposite side; in this way the fragments of the upper jaw may be forced well up into their former position. If the fracture of the upper jaw is on one side only, an upper cast splint is all that is

necessary. These splints should be kept on from four to six weeks.

The diet of the patient consists of food every three hours, and, as the teeth are held together, must be of a liquid nature. Something like this may be suggested; egg-nogs, milk, potato and water soups, milk, malted milk, and cocoa with malted milk, and, in the later stages, minced meat and mashed potatoes and vegetables. It is never necessary to extract a tooth for feeding purposes as, if the splints are properly constructed, the fluids have no difficulty in passing through the inter-spaces.

We have not considered the treatment of non-union of fractures of the jaws, as a bony union is to be expected in most cases, but we have had a number of patients that required a bone-graft when no union was evident after a period of six months. These cases were seen late and fibrous tissue had interposed between the fragments. It was considered wise to hurry the treatment by free-graft, but in these cases a period of at least six months had elapsed since the last evidence of infection was noticed, and after dead and infected teeth had been removed. Special splints were constructed for these cases, by that we mean the same type of metal cast splints as mentioned above, but these were re-enforced before they were cemented in position. We have followed some of our earlier cases and x-rayed them six years after operation; and they showed excellent bony union at the end of that time, and the wires were still in position. We would call attention to the fact that in these bone-graft cases wiring was done through sterile areas and all bone-grafts were inserted through an incision in the neck. We believe that in well selected cases all free bone-grafts inserted under favourable conditions should result in bony union within three months.

ELECTROCUTION FROM ULTRA-VIOLET RAY LAMP.—

A case is reported in which a young man was found dead in a bath, with an ultra-violet ray lamp beside him. Death was attributed to shock, and an electrical expert, who examined the lamp at the request of the coroner, gave evidence to the effect that there were five ways in which an electric shock might have been sustained from the apparatus. The deceased had purchased the lamp in order to treat himself for blackheads on the back of the neck, and the makers had supplied a book of in-

structions. About this book the coroner remarked that it appeared to be a "puff," suggesting that the apparatus would cure every disease that mortal flesh is heir to, and that it gave no adequate warning of the dangers which might attend the use of the lamp when connected to a house current of 230 volts. It was stated that the lamp was of faulty construction, and that the insulating material used in it was very inefficient.—*Brit. M. J.* 1: 163, 1929.

ON LABORATORY AIDS IN THE DIAGNOSIS OF DISEASE OF THE GALL BLADDER AND ITS PASSAGES*

BY W. L. RITCHIE, M.D., AND I. M. RABINOWITCH, M.D.,

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THE following is a brief report of an attempt to compare the value of various laboratory tests for the detection of disease of the gall-bladder and its passages. Though this subject may be of general interest clinically, the investigation was primarily undertaken from the point of view of the prevention of diabetes.

There is clinical, laboratory and statistical evidence that disease of the biliary passages and diabetes are related. In our clinic for diabetes, as well as in others, it has been found that in about 25 per cent of the patients who were twenty-five years of age or over at the time the diabetes made its appearance, gall-bladder disease was also present. The recognition of this condition is important since a large number of such diabetics are able to reduce the amounts of insulin, or to do without it entirely, after surgical treatment, and, of those who have never required insulin, many are able to tolerate diets of more liberal carbohydrate content. Joslin¹ first reported that of seventy-three cases of diabetes associated with disease of the gall-bladder the average age of these patients at the time of the diagnosis of gall-bladder disease, was forty-five years, whereas, the average age at the onset of the diabetes was forty-seven years. In our first series of twenty-two such cases studied² the difference between the average age at the onset of the two diseases was 4.1 years. In the interpretation of these data there are numerous variables to consider. One of these is the difficulty of determining the exact dates of the onset of the two diseases. The fact, however, that the results of two different clinics are somewhat similar strongly suggests that the biliary disease preceded the diabetes.

From the laboratory point of view, two observations may here be mentioned. Jones, Castle, Mulholland and Bailey³ have shown that of sixty-eight unselected diabetics, cholelithiasis, diagnosed by examination of the duodenal sediments, was found in 19 per cent of the cases, and, in our clinic, of one hundred and thirty diabetics selected at random, there was evidence of biliary disease in thirty-four cases—an incidence of 26 per cent.²

Statistically, one of the writers (I.M.B.) demonstrated⁴ that, at least, in the experience of this hospital, approximately nine times as many patients with disease of the gall-bladder and its passages had diabetes as would be expected if the two diseases were completely independent. An analysis of the various forms of the disease showed that the incidence of diabetes was greater in cases of cholecystitis than in cholelithiasis, and that in acute pancreatitis the incidence was forty times greater than chance would allow.

In view of the above findings it is obvious that particular attention should be paid to diagnosis of biliary disease in all cases of diabetes. Detection of this condition may now be greatly facilitated by the use of laboratory methods.

With reference to the latter, the following observations may be made.

Proper selection of any laboratory test as an aid to diagnosis depends upon proper knowledge of the underlying principles of the use of that test and the variables which must be considered in the interpretation of results. As is generally known, in the case of biliary disease, there are a number of tests which may be made use of. In our experience those which appear to have been the most useful and practical and which now form part of our routine are the following:

1. Fat partition of the stools.
2. Estimation of the urobilinogen content of the urine.
3. Estimation of the sugar content of blood in the fasting state.
4. Van den Bergh reaction.
5. Blood sugar time curve.
6. X-ray visualization of the gall-bladder with the aid of phenoltetraiodophthalein. These are based upon functional alterations in the gall-bladder, liver and pancreas.

It is obvious from the underlying principles of the use of these tests and the variables to be considered in the interpretation of results that each has its limitations. Apropos of this a few of the salient points will be discussed.

Partition of the fat content of stools has been found of value only when fat is imperfectly absorbed from the alimentary canal. In such cases it is important to determine whether the imperfect absorption is due to defective emulsification, as may occur in catarrhal jaundice, or whether it is due to imperfect digestion of fats resulting from defective lipase production, as in advanced chronic inflammation of the pancreas or in carcinoma of this organ. With imperfect digestion the greater part of the fat found in the stools exists in the neutral form rather than as fatty acids. This test is of very little value in the detection of early gall-bladder disease.

Quantitative estimation of the urobilinogen content of urine is also of little value in early

* From the Departments of Metabolism and Radiology, the Montreal General Hospital.

disease. The incidence of excessive quantities of this pigment in this condition is not very great. Excessive urinary excretion of urobilinogen is usually, in the absence of hæmolytic processes, the result of marked hepatitis. It appears, therefore, that, in early gall-bladder disease, either there may at times be no hepatitis, or the reticulo-endothelial cells, in spite of some damage, are able to cope with the urobilinogen reabsorbed from the alimentary tract and thus reconvert it into bilirubin.

As to the van den Bergh reaction and the estimation of the blood sugar obtained in the fasting state, these also have their limitations, but they are much superior to the tests just referred to. The principles underlying the use of these tests differ from one another. Hyperglycæmia is held to indicate pancreatic disturbance, and a positive van den Bergh reaction is supposed to indicate hepatitis. Both of these conditions frequently result from gall-bladder disease. It is obvious, therefore, that the chief factor which will influence results of these tests is the degree of disturbance. This is shown in the following table which is a reproduction of the one previously reported.²

INCIDENCE OF HYPERGLYCÆMIA AND HYPERBILIRUBINÆMIA IN 146 CASES OF BILIARY DISEASE					
Condition	No. of cases	Positive van den Bergh		Hyper- glycæmia	
		No.	Per cent	No.	Per cent
Cholelithiasis and Cholecystitis					
With symptoms	56	48	85.7	37	66.0
No symptoms	68	31	45.6	11	16.1
Pancreatitis	22	20	90.0	18	81.6

Of all chemical tests the blood sugar time curve, when properly interpreted, appears to be the most satisfactory. This was previously demonstrated by one of us (I.M.R.).² It is apparently able to detect gall-bladder disease even when the latter is not sufficiently active to be manifested by clinical signs and symptoms. Its superiority to the estimation of the fasting blood sugar alone may be seen from the following. Both tests depend upon the presence of pancreatitis. It is well known that, even in diabetes, if the latter is mild or under control, no hyperglycæmia may be found in the fasting state. However, ingestion of a large quantity of carbohydrates, in a very readily absorbable form, (*e.g.*, one hundred grams of glucose), rarely fails to detect its presence.

X-ray visualization of the gall-bladder with the aid of phenoltetraiodophthalein also appears to be a very accurate method, providing the dye is administered intravenously; but no statistical study was made as to this test. As is well known, the underlying principle of this test is that a normal gall-bladder will concentrate the dye, providing it is brought to the bladder; but concentration does not take place when there is marked hepatitis or when there is obstruction of the cystic duct. These two factors must always be considered in the interpretation of the data.

From the above observations it appears that, of all the procedures mentioned above, the last two are the most satisfactory. But difficulties may be met with. With the blood sugar time curve it is possible to eliminate, by careful clinical examination, other conditions which might lead to positive results (hyperthyroidism, chronic nephritis, eczema, etc.) but, it is not always simple, in the absence of x-ray examination, to determine whether the individual has gall-bladder disease or whether he has early diabetes. It is also possible to have gall-bladder disease without involvement of the pancreas. In the absence of pancreatitis, the test will be negative, in spite of the fact that the gall-bladder may be markedly diseased.

With x-ray visualization of the gall-bladder, when a shadow is found it does not necessarily follow, in spite of the factors mentioned above, that the individual has a normal gall-bladder; the problem becomes quantitative.

Aside from these variables there are two other considerations. For visualization of the gall-bladder, it is necessary to inject a foreign substance into the blood stream, which, according to the literature is not always harmless. In our experience, there have been an insignificant number of ill effects in spite of the hundreds of tests which have been made. As to the blood sugar time curve, a disadvantage is that it involves frequent (five) venous punctures. In view of these observations an attempt was made to determine the relative sensibility of these two tests and whether it was possible to make use of any one of them to the exclusion of the other.

METHOD OF INVESTIGATION

The last 300 case reports bearing a diagnosis of either cholelithiasis, cholecystitis or pancreatitis were collected. Of these cases it was found

that many had records of either chemical tests or x-ray only. In this comparative study it is obvious that such cases had to be excluded. Of the many cases with both chemical and x-ray reports some of the patients were not operated upon. Since either findings at operation or report of the pathologist form the only *exact* basis from which to draw conclusions, such cases had also to be excluded. Because of this, we were left with only 43 cases, the data of which could be made use of. In each case, the following information was available:

1. Blood sugar time curve.
2. X-ray of the gall-bladder following intravenous injection of phenoltetraiodophthalein.
3. Report of examination at operation or report of pathologist, or
4. Both surgical and pathological report.

The results were as follows:

Findings	Incidence
Positive blood sugar time curve and positive x-ray	28
Positive blood sugar time curve and negative x-ray	9
Negative blood sugar time curve and negative x-ray	1
Negative blood sugar time curve and positive x-ray	3
Doubtful blood sugar time curve and positive x-ray	1
Negative blood sugar time curve and doubtful x-ray	1

Of the twenty-eight cases with reports of blood sugar time curves and x-ray both positive, all had gall-bladder disease. Of the nine cases with positive blood sugar time curves and negative x-rays, in eight instances the findings at operation, or by the pathologist, were those of cholelithiasis. In the one case where both laboratory reports were negative, the surgical and pathological reports were also negative. In the three cases with negative blood sugar time curves and positive x-rays, the final diagnoses agreed with the x-ray reports. In the one case where the result of the blood sugar time curve was doubtful and the x-ray was positive, the findings at operation confirmed the x-ray report. In the one case where the blood sugar time curve was negative and the x-rays were doubtful, the report of the pathologist confirmed the chemical report.

Considering the two tests separately it will be seen that in these 43 cases, the disease was detected pre-operatively by chemical examination in thirty-eight cases, an incidence of about 88 per cent. The x-ray findings were corroborated in 34 cases, an incidence of about 74.4 per cent.

CONCLUSIONS

The above findings lead to the following con-

clusions. Though the blood sugar time curve appears to be slightly more reliable than the x-ray, it appears that both should be made use of in each case. Agreement between the results of the blood sugar time curve and x-ray appear to make the diagnosis certain. The number of cases in which this was done is relatively small, but the results certainly suggest that by the use of both of these methods in each case, and providing results of tests are properly interpreted, a very satisfactory stage has been reached in the diagnosis of gall-bladder disease. In all of the twenty-nine cases in which agreement between both tests was found, the pre-operative diagnosis was confirmed. A parallel of this experience can hardly be found in the days prior to the use of laboratory methods.

As stated before, though this subject may be of general interest, the investigation was undertaken primarily from the point of view of the prevention of diabetes. The blood sugar time curves present further evidence, if any is necessary, of the high incidence of pancreatitis in cases of gall-bladder disease. Such individuals are potential diabetics. This may be seen from another angle. In the last 10,000 admissions to the wards of our hospital there were 204 diabetics. This makes the incidence of diabetes in our ward cases about 2 per cent; whereas, amongst the 300 cases with a diagnosis of cholelithiasis, cholecystitis or pancreatitis there were 23 diabetics, an incidence of about 7 per cent. In other words, in the group of individuals with suspected disease of the gall bladder and its passages the incidence of diabetes was more than three times as great as for the hospital population as a whole. Of the 43 patients in whom the diagnosis of biliary disease was certain there were five diabetes. This is an incidence of about 12 per cent or about six times greater than that found in the hospital population as a whole. In view of the proved relationship between gall-bladder disease and diabetes it is suggested that x-ray examination should be a routine procedure in all adult diabetics.

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CHRONIC MENINGOCOCCAL SEPTICÆMIA*

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THE following case is reported on account of its obscure symptomatology which for some time made the diagnosis uncertain. A clue was found in the literature and the following up of this led to the final clearing up of the diagnosis and the institution of successful treatment.

CASE REPORT

B. McL., aged 44, a master mechanic, entered the Montreal General Hospital on December 14, 1927, complaining of fever, periodic eruptions on the hands and feet, and pains in the legs.

Personal History.—He was a patient of Dr. C. E. Cross', Three Rivers, Quebec, and had been perfectly well until the latter part of August, 1927. He had always resided in Canada. On one or two occasions he had visited the United States, but had never gone farther south than Albany, New York. He had the usual diseases of childhood, but there was no definite history of any rheumatic fever. He had used alcohol and tobacco in moderation, and there was no history of venereal disease. For the past twenty-three years he had no illness apart from an occasional cold, and had not missed a day away from work. There was no history of pneumonia, typhoid or pleurisy. For the year prior to the onset of his present illness he had lived continuously in Three Rivers. The patient considered the milk supply to have been received from reliable sources. He stated he had never been a heavy milk drinker, nor had he ever been bitten by any animal, such as a rat or dog.

Family History.—Irrelevant.

History of Illness.—On the evening of August 21, 1927, he had been visiting his wife in hospital, following her confinement. Just as he was leaving the hospital, he was seized with a sudden severe chill, and had great difficulty in driving his car home. He went to bed and felt better the next morning, when he was told by a doctor

that he had "grippe". He had a second slight chill that morning, which was associated with pains in his legs and a weakness so marked that he could scarcely walk. He entered the hospital at Three Rivers on August 23rd.

Following his admission, he had attacks of fever on an average every second day. There were no definite chills following the two mentioned, but with each sharp rise in temperature he would feel cold and have frontal headache and general malaise. This condition would last several hours, but in between the bouts of fever he would feel perfectly well and strong. With each attack of fever he noticed an eruption on his hands and feet, but not on his body. It was not itchy and would last about twenty-four hours and then gradually disappear.

Corresponding to the elevation of temperature there was a dull aching pain in both thighs and legs, which felt as if it were "in the bones" rather than in the joints. Flexing the knees seemed to give relief. Pain would disappear with the fall of the temperature. Other parts of the body were entirely free from pain. There never were any digestive disturbances. His bowels have always been regular, and stools were normal in character. There was no history of jaundice, nor of any disturbance of the genito-urinary tract. There was never any cough nor pain nor distress in breathing.

The irregular fever persisted until the time of his admission to the Montreal General Hospital, which was almost three months later. He had been seen by a doctor in consultation in the earlier part of his illness, who advised extraction of several suspicious teeth. He had also had two courses of quinine in intensive doses, without any obvious change in the course of the disease. A little later he had an injection of mercurochrome intravenously. This was followed by an afebrile condition for three days, when the attacks of fever recurred.

He was seen in consultation by Dr. A. H. Gordon in the last of November, 1927, who made

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the following note after the patient had been admitted to the Montreal General Hospital:

"I saw this patient at his home in Three Rivers with Dr. Cross two weeks before his admission, and considered then malaria, miliary tuberculosis, and septicæmia from an unknown source. Several teeth had been recently extracted, and several more were still infected, and were later extracted. A blood count showed 4,100,000 red cells; 16,000 white cells; hæmoglobin 60 per cent (Sahli). The patient was pale, shallow, and at that time gave a history of skin eruptions with fever, but none were present when I saw him. Aside from these features the examination was negative. The Widal and Wassermann tests had been negative."

(Owing to Dr. Gordon's illness at the time of the patient's admission to hospital the latter was admitted under the care of the writer of this article.)

Physical Examination.—On admission, his pulse was 72 per minute; respirations, 18 per minute; temperature 98° F.; blood pressure, 120/80. He was well developed and moderately well nourished, but had evidently lost weight and his muscles had become flabby. The skin was pale and the mucous membranes were definitely anæmic. He was in no apparent distress. There was no icteroid tint to the sclerotics. The pupils were equal and active, and the movements of the eyes were equal in all directions. There was no tenderness over the sinuses, antra, or mastoids. No rigidity of the neck was noted. The tongue was pale, moist, slightly coated and protruded in a straight line. The teeth had all been extracted. The tonsils showed no definite evidence of infection. The thyroid appeared negative and there was no enlargement of the superficial glands.

The respiratory system was normal. The cardiovascular system showed a regular pulse of good volume; the heart was within the normal limits. The first and second sounds at the apex and the base were clear. The pulmonary second sound was not accentuated.

The abdomen was normally rounded and soft on palpation and careful examination showed nothing abnormal beyond slight tenderness of the liver, which was palpable about 2 cm., below the costal margin in the right mid-clavicular line. Rectal examination was negative. External ex-

amination of the genito-urinary system was negative.

The patient's mentality was clear and the nervous system generally showed no abnormality.

The skin was rather dry, there was no jaundice, and the joints were freely movable, actively and passively. It was noted that on the dorsum of the right hand, on both legs and arms, and scattered over various parts of the body were erythematous-like nodules, varying in size from a small pin-head to 1 cm. in diameter. These were not tender, faded out on pressure, and varied from a bright red to a purplish colour. The patient stated that these nodules appeared with his "shoots" of temperature and gradually faded away when temperature was normal. The fundi were normal.

The special findings on admission were as follows:

Urine analysis: specific gravity 1020; acid; albumen 0; glucose 0, microscopical examination negative.	
Red blood cells	3,460,000
White blood cells	14,600
Hæmoglobin	50 per cent (Dare)
Polymorphonuclears	84 " "
L. lymphocytes	9 " "
S. lymphocytes	4 " "
Transitionals	3 " "
Eosinophiles	0
Basophiles	0

A smear showed the red cells to be rather pale, with slight anisocytosis, but no definite macrocytes or microcytes. No malarial parasites were found.

The Widal reaction was negative for *B. typhosus*. The blood Wassermann was negative. A special study of the blood showed: No increased fragility; colour index 1.0; platelets 450,000; Van den Bergh negative; cell volume 32.7 per cent; average size of red blood cells .86 micra.

Stool examination was negative.

Urobilinogen was present in the urine in less than 1:10 dilution.

An examination of the sinuses and tonsils showed no cause for the continued fever.

X-ray examinations of the chest, sinuses, gall bladder and a barium series were entirely negative.

On December 15, 1927, the day following admission, a bile and blood culture were taken. At that time the patient's temperature had risen to 103.6° F.; pulse 120; respirations 22 per minute. There was no definite chill with this rise in temperature, but he felt dull and slightly nauseated. On the next day, his temperature was again normal, pulse 76, respirations 18, and a few fresh nodules had appeared on upper and lower limbs. The liver was still palpable. The patient felt quite well, had eaten his dinner, and was sitting up in bed reading his paper when the doctor entered the room.

On December 17th his temperature had again risen to 103° F.; pulse 100; respirations 18. No tender nodes were noted at the tips of fingers or toes, nor were there any petechiae. The trunk and upper and lower limbs were well covered with reddish erythematous nodules. In the conjunctiva of the right lower lid was a small reddish area, 2 mm. in diameter, which faded on pressure. During the night of December 16th the patient had complained of an aching pain in the right femur, but no tenderness could be elicited on pressure.

This tertian type of fever persisted until December 21st. In between elevations of temperature the patient had absolutely no complaints and stated that he felt very well. The erythematous nodules tended to fade on the afebrile days. At no time was there any suggestion of rigidity of the neck or a positive Kernig's sign.

At this point it was found that the blood culture showed a Gram-negative diplococcus, and at first it was thought that this was a case of gonococcal septicemia, but later it was suggested that it might be the meningococcus, and this it eventually proved to be.

A second blood culture taken on December 19th again showed a growth of meningococcus and a swab taken from the patient's nostrils gave almost a pure culture of meningococcus. Unfortunately, the organism was not typed.

On December 21st, the patient was seen in consultation by Dr. H. A. Lafleur who made the following note: "After reading the history and the laboratory reports it seems impossible to come to any other conclusion than the diagnosis suggested, *i.e.*, meningococcus infection of a relatively mild type."

On December 22nd, at 1.30 p.m. the patient's temperature was 98° F., and pulse 80. He felt quite well, and there was a fresh crop of erythematous nodules scattered over the body and limbs. He was given 1 c.c. of polyvalent meningococcal serum subcutaneously. There was no reaction. At 2.00 p.m. 1 c.c. of polyvalent serum was given intravenously. The patient was slightly flushed at the end of the injection. At 2.40 p.m. 10 c.c. of the same serum were given intravenously. There was no reaction except for flushing of the face, and by 4.00 p.m. his temperature had risen to 101° F.

By December 23rd, at 9 a.m., the temperature

was down again to 97.8° F. and the following bedside note was made: "Yesterday was not his usual day for elevations of temperature. Today he feels as usual. Pulse, 88. Nodules well marked about forehead, limbs and body. Slight cellulitis on anterior surface of left forearm where the vein was infiltrated while introducing serum. Spleen, not palpable. No pathological reflexes or other evidence of meningeal involvement." On this day the temperature again rose to 103.8° F., this being the expected time for elevation of temperature.

On December 24th, at 9.00 a.m. he had 20 c.c. of polyvalent serum intravenously with no immediate reaction, but four hours later developed a well marked urticarial (serum) rash over shoulders, face, arms and legs, and temperature to 100.3° F. A blood culture was taken, and was reported sterile on December 28th.

The following day no serum was given, but his temperature rose to 103.2° F. It was the usual time for his chilly sensation and bout of fever. He complained of headache, had a fresh crop of nodules, as well as a more or less generalized urticarial rash, but no rigidity of neck or Kernig's sign. Thirty c.c. of serum were given intravenously on December 26th. This was followed almost immediately by a definite chill lasting five minutes and an intense generalized urticarial rash. No definite nodules were seen. His temperature rose to 102.6° F. A blood culture, taken on this date, was reported sterile on December 29th.

The temperature reached 103.2° F., on December 27th, in accordance with the usual periodical elevation. He was given 50 c.c. of serum intravenously at 4.00 p.m. and by evening a generalized urticarial rash was well marked.

He had 75 c.c. of serum intravenously on December 28th, and this was followed by elevation of temperature to 100.8° F., several slight chills, and a generalized urticarial rash.

Another 75 c.c. of serum were given intravenously on December 29th. His temperature had its periodic rise, to 104° F. The introduction of serum was followed by a very slight chill and almost immediate intense perspiration. Still no evidence of meningeal involvement.

On December 30th, 45 c.c. of serum intravenously with no reaction, but the temperature rose to 104.8° F., which was not in accordance with his regular period of high fever. He was

slightly delirious but had no rigidity of the neck or Kernig's sign.

On December 31st for the first time since admission the temperature did not go above 101.4° F. Fifty c.c. of polyvalent serum (Connaught Laboratory) was given intravenously and there was no generalized reaction. No urticarial rash, except on legs. The white blood cell count was 12,400.

During the next nine days he was given serum intravenously every day, with an interval of a day between the fifth and sixth doses. The quantity was increased from 75 c.c. (on the 1st and 2nd of January) to 100 c.c. on the following days. There were no marked reactions to any of these injections. His temperature continued to show its regular elevations on alternate days, but at a lower range than for the few days before the administration of the serum. He was also given transfusions of citrated blood on January 6th and 10th.

By January 11th he had received 10,005 c.c. of polyvalent serum, each injection being preceded by six minims of 1:1000 adrenalin given subcutaneously. His condition was now fairly satisfactory. His pulse was good. There was no urticaria, but there were some fading nodules on both legs. There was no rigidity of the neck and no Kernig's sign. The heart, lungs, and abdomen showed nothing abnormal. His blood count, on January 6th, showed 3,310,000 red cells, 16,000 white cells, and 53 per cent hæmoglobin (Dare); which was about the same as on admission.

At this stage the patient insisted on returning home, and he was transferred to Dr. Cross for further treatment. I have so far been unable to obtain exact data concerning his further course of treatment, etc., but have been told that shortly after returning home the intravenous method of serum administration had to be stopped owing to inability to find suitable veins.

The intramuscular and subcutaneous methods of administration were then resorted to, and the patient developed an intense cellulitis of both arms and chest. His fever up to this time had persisted.

However, in the latter part of February, 1928, as the cellulitis cleared up, his temperature dropped to normal and has remained so to date. A blood culture has not been taken, but it would undoubtedly prove to be negative. The patient

is now back at his usual occupation, with no apparent sequelæ.

COMMENT

Here, we have a man who apparently had a chronic meningococcal septicæmia, which persisted for six months without going on to meningitis, and finally responded to intravenous, intramuscular and subcutaneous administration of polyvalent antimeningococcus serum. It is also felt that the intense cellulitis played the part of a fixation abscess, or shock therapy, in bringing about a cure of the patient.

A RÉSUMÉ OF THE LITERATURE

The following is a résumé of the literature on this subject, from 1919 to date, and includes data of cases reported as early as 1897.

Herrick¹ does not consider infection with the meningococcus a sepsis throughout the entire course of the disease. He is certain that there is a blood-stream invasion at first, for a period averaging forty-eight hours, often more, at times less. Later, there is the local process, usually in the meninges, not infrequently elsewhere. He reports the following varieties.

1. *Types of Infection other than Meningitis as the only Manifestation.*

- (a) Meningococcus sepsis with meningitis, either clinically evident or shown at autopsy.
- (b) Meningococcus sepsis without meningitis, but with a septic polyarthritides.
- (c) Meningitis tarda, or meningitis with premeningitic stage of meningococæmia of several weeks' duration.
- (d) Meningococcus pleurisy without meningitis.
- (e) Meningococcus empyæma of the accessory nasal sinuses, without meningitis.

The infection may be of the purpura fulminans type, with death in a few hours or days, or it may be the more chronic type, persisting for weeks and months.

Up until 1911 only five cases had been reported in which there was no evidence of a meningitis. The earliest case of primary meningococcal septicæmia was reported by Salomon in 1902. The infection may resemble the polyarticular type of gonorrhœal rheumatism. Faroy and May² report two cases of meningococcus sepsis with arthritis. Some authors describe seven different forms of meningococcal blood-stream infections, i.e., the fulminating, the typhoidal, the pseudo-malarial, the eruptive, the articular, the metastatic, and the abortive. In 5 per cent

of the cases studied a meningitis never developed.

2. *Symptoms and Signs.*—Some authors refer to a typhoidal type of fever, others to a malarial type, and still others to a pseudo-malarial fever with arthritic pains and a maculo-papular eruption. Bloedorn's first case⁸ had a sudden onset with chills, great prostration, and a high temperature. His second case⁹ had a quartan type of temperature for the first two weeks of the disease, and then the temperature became septic in type. A case reported by Morgan⁷ had a sudden onset following extraction of a tooth. The chief symptoms were chills, recurrent fever, increasing lassitude and weakness, loss of weight, joint pains, headaches, and recurring crops of erythematous nodules.

Friedmann and Deicher³¹ describe their case as follows:

The symptomatology of the condition is composed of the following characteristic clinical picture: a catarrhal infection of the nasal mucosa, the pharynx or the bronchi, is followed by the development of a highly peculiar febrile type. The attacks of fever are repeated at short intervals, every 48 hours, so that at first the impression of tertian malaria is produced. Actual chills, however, do not usher in the rise of temperature, as distinguished from malaria, there being merely a pronounced chilly sensation. In the further course, the fever returns daily, sometimes every 12 hours. The general condition is remarkably slightly disturbed in view of the height and long duration of the fever. The disturbances are inconsiderable even during the febrile attack, while the patients feel perfectly well in the afebrile interval. The eruption, often very extensive, which usually appears on the subsidence of the fever, is very characteristic, consisting of small or large infiltrated, slightly prominent, painful, red spots, suggestive of erythema nodosum. The diagnosis is based on the type of fever, the good condition, the eruption and the demonstration of the meningococci in the blood. The prognosis seems to be relatively favourable, although sometimes a purulent meningitis may supervene at the end of weeks or months.

(It was the writer's reading of the above summary that put him on the right track for diagnosing the case reported).

3. *Clinical Findings.*—The age incidence of sixteen cases varied from fifteen years to fifty-seven years. Blood counts usually show a leucocytosis with polymorphonuclear leucocytes predominating. This helps to distinguish the condition from malaria (Bloedorn). The fundamental diagnostic features are the behaviour of the temperature, the character of the eruption, the articular, muscular, bony and nervous pains, and the meningeal syndromes. The confirmatory diagnostic measures consist in a positive blood culture, and eventually in an an-

atomical or bacteriological examination of the contents of the eruptive lesions.

In two cases reported by Fontanel and Le Bourdelles²³ a drop of blood examined directly showed the presence of the meningococcus. Their opinion is that the organisms reach the blood either from the naso-pharynx or the intestines—in either case by way of the lymphatics. The meningococci may be discharged into the blood suddenly in large quantities, or intermittently. In the first case the onset is sudden with chills and fever, and the rapid development of purpura. The organisms are easily isolated from the blood at any time after the onset of symptoms. In the second case the onset is more gradual, with intermittent fever of a pseudo-malarial type. The meningococci cannot always be isolated from the blood.

4. *Bacteriology.*—The meningococcus intracellularis was identified by Weichselbaum in 1887. It is a Gram-negative, biscuit-shaped diplococcus. In the body it prefers an intracellular habitat. The organism is divided into several types: (1) type 1, 2, 3 or 4 (Gordon 1915); (2) type A, B, C, (Nicolle); (3) normal, paraneural, irregular.

The meningococcus is an invader of the blood stream in a much larger proportion of cases than has heretofore been supposed, and the number of those cases not developing meningitis is sufficiently large to demand consideration. It may exist in the naso-pharynx and lead to no ill effect. Danger only arises when the blood stream and meninges are invaded.

As Simchowicz²⁴ states, the Weichselbaum diplococcus may cause not only meningitis but also a primary rhinopharyngitis, pseudo-malaria, pseudo-typhoid fever, and pseudo-rheumatism of meningococcic origin. In the series reviewed, types A, B, and C, were reported. Bloedorn⁹ states that blood cultures should be taken repeatedly, and incubated for at least 72 hours before being pronounced sterile. In his case the blood culture was negative until the eighteenth day of disease. Morgan⁷ reports two cases in which the blood culture first became positive on the thirty-ninth and forty-ninth day of disease respectively. In a case reported by Fontanel and Le Bourdelles²³ a positive culture for meningococcus was obtained from a fragment of skin taken from a purpuric spot.

5. *Duration.*—There may be death six hours

after the initial chill, according to Herrick.¹ The condition may exist for weeks or months and resemble other acute infections, particularly rheumatic fever, malaria or endocarditis (Bloedorn).⁸ All cases if left untreated, will eventually develop localizing signs, either in the meninges, endocardium, or joints. In the literature reviewed, the cases lasted from two months to eleven months.

6. *Forms of the Rash.*—The rash may be of various types, i.e., maculo-papular, erythema multiforme, erythema nodosum, or may resemble "rose spots" (Herrick).¹ In Fontanel and Le Bourdelles'²³ case, there was a general purpuric eruption. Brown²¹ reports a case with lesions resembling measles which rapidly changed to large purpuric spots.

7. *Prognosis.*—The cases are almost certain to end in meningitis if left untreated with specific serum. Eighty-five per cent of the pseudomalarial type of infection will recover if treated properly (Ferrarini¹⁹). If specific treatment is instituted as soon as a diagnosis is made, the development of a severe meningitis can usually be prevented (Morgan⁷). The cases developing a generalized purpuric eruption are usually rapidly fatal (Bloedorn⁹). Serum sickness may develop following the administration of the specific serum.

8. *Treatment.*—The three means employed are serum, shock, and autovaccine. These may be administered intravenously, subcutaneously, intramuscularly, and by local injections in the case of arthritis, etc. One should always use intravenous therapy if signs of meningitis are present. If no signs of meningitis are present, a lumbar puncture should not be done on account of the possibility of introducing the meningococcus into the spinal cord while the patient shows the presence of the organism in the blood stream (Bloedorn).⁸

In cases showing symptoms of intermittent fever and rash, joint pains and frontal headaches, with comparative good health between attacks, the treatment should be polyvalent antimeningococcus serum, even if it is impossible to identify or agglutinate the organisms from the blood (Dock²²). The antimeningococcus serum should be given subcutaneously, intravenously, intramuscularly, and if necessary intraspinaly.

The technique of administration varies with

different writers. Cohen⁵ recommends testing the agglutination titre of the various commercial sera available against the strain isolated from the case in question, then using the serum which has the highest titre. Some writers suggest five injections of serum at twenty-four-hour intervals, alternating subcutaneously and intramuscularly. If no improvement results, then give it intravenously. The patient should be kept under observation for at least a month following the supposed cure. Some authorities urge the immediate classification into types and the use of specific serum.

Bloedorn⁸ considers that frequent intravenous injections of small amounts of serum, say 15 c.c. per hour, are preferable to a single injection of a large amount. In one of his cases he gave 320 c.c. intravenously over a period of six days. Serum sickness developed on the thirty-second day of disease, lasting twenty-four hours. The average daily intravenous dose of serum advocated is 20 to 40 c.c.

The French authors recommend the following procedure. Type the causative organism as soon as possible, and use specific anti-serum. Until this is available, a polyvalent serum should be employed. Begin treatment with daily injections of 40 c.c. of antimeningococcus serum, one day subcutaneously and the next intramuscularly, until five treatments have been given. If there is no improvement, then give the serum intravenously.

In two cases reported by Morgan,⁷ he gave to the first 110 c.c. of polyvalent serum intravenously, and 225 c.c. intraspinaly. Serum sickness developed, but gradually disappeared. In his second, 75 c.c. were given intravenously and 155 c.c. intraspinaly. This was followed by serum sickness for five days.

The rare case may not respond to serum treatment, and vaccine therapy has been successfully used. Sergeant *et al*.³ report a case where the use of stock vaccine was followed by a normal temperature, where intravenous and subcutaneous antimeningococcus serum treatment had failed to produce any change in the type of temperature curve. Gandy *et al*.¹⁵ treated a case by specific type B serum in 23 daily injections, followed after the cessation of fever by a series of auto-vaccine treatments. Pontano and Trenti⁶ used specific vaccine therapy accompanied by anti-syphilitic meas-

ures. In Merle's²⁹ case, antimeningococcus serum, intraspinously, relieved the meningeal symptoms. Given subcutaneously, the serum had no effect on the septicæmia; given into the joints involved, the serum relieved the pain, but not until autogenous vaccine was administered, was there any rapid fall of temperature and the onset of convalescence.

Still other writers advocate the use of shock therapy, or "abscess of fixation," as a definite curative measure, successful in cases in which all other forms of therapy have failed. The substances used were electrargol, glucose, physiological serum, and milk (Blum¹²). It is thought by some, that the cure of meningococcus infection is brought about through the physiochemical action of the ferments and oxidases of the polynuclear cell upon the meningococcus.

I am indebted to Drs. A. H. Gordon and C. E. Cross for permission to publish this case, and also for their valuable assistance.

To Dr. L. J. Rhea, I am indebted for the bacteriological work.

DISCUSSION

In the discussion it was asked whether the patient described might not still be a carrier and a danger to others. The question also was asked whether a definite focus had been determined on; it seemed unusual to have a chronic septicæmia without a focus of some sort.

In answer, Dr. Montgomery said: As regards the first question about the carrier, I do not think we can be quite sure until the man returns for a further culture. The answer to this first question will also, I think, answer Dr. Macdermot's question about the focus. A smear from the nostrils gave almost a pure culture. I omitted to say that, following this, the nose and throat men treated the patient with a 20 per cent argyrol solution, and when he left the hospital the nose smear was absolutely negative. We only got one positive culture of meningococcus prior to his discharge from the hospital. Of course, to be absolutely sure, he should be brought back and another culture taken.

I should also like to add that Dr. Rhea has told me that when he was at No. 3 Canadian Hospital at Boulogne, an Australian officer came in with spinal meningitis, or at least, I should say, with meningococcal symptoms. He was treated for a period of six months, during which time he received ninety-three lumbar punctures, but no positive culture was obtained. He finally developed acute meningitis, and died. Unfortunately no autopsy was allowed. Dr. Rhea felt that the patient had an internal hydrocephalus and that that acted as a focus of infection. As far as we could see in the present case, however, it certainly seemed to be the nostrils that housed the infection, and we felt that it was the distributing centre for his blood. After that it persisted for six months, but

at no time did he lead one to believe that there was any inflammation of the central nervous system, although most cases do develop meningitis.

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DELAYED SUB-DURAL HÆMORRHAGE*

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HÆMORRHAGE within the cranial cavity is a relatively common occurrence. The site of the bleeding varies with its source and cause. Bleeding may take place into the substance of the brain or into a ventricle, from a cerebral or cerebellar vessel which has ruptured as a result of morbid change; it may be extra-dural, most often arising from a meningeal artery severed in a fracture of the skull; lastly, the blood may lodge between the dura mater and the leptomeninges.

For the most part, intracerebral or intraventricular hæmorrhage is not traumatic in origin, but results from the spontaneous rupture of an atheromatous vessel and is not amenable to surgical intervention; extra-dural bleeding, on the other hand, is practically always traumatic and demands immediate operative interference. Sub-dural hæmorrhage may be acute or chronic. The former, which is relatively common, leads to more or less rapid and severe compression, and, in the event of the blood seeping downwards to the medulla, a condition which not infrequently supervenes, a rapidly fatal termination is almost inevitable. Chronic sub-dural hæmorrhage, which is decidedly less common, may be either spontaneous or traumatic.

The spontaneous type, which is commonly called "pacchymeningitis hæmorrhagica interna," occurs, according to Oppenheim¹ in those diseases where there is atrophy of the brain and vascular degeneration, such as general paresis of the insane or senile dementia. The bleeding is slow and the clot gradually becomes surrounded by a membrane formed by partially organized fibrin which tends to restrict the spread of the blood. The traumatic type follows an injury which is often trivial, and although the pathological condition may and usually does present the same appearance as that of the spontaneous variety, the difference lies in the fact that the bleeding occurs in apparently healthy brains.

It is more particularly this latter subdivision which I wish to discuss in this paper and to illustrate by a small series of cases.

In the literature the terminology of this condition is somewhat confusing. Such expressions as chronic sub-dural hæmatoma, intracranial venous hæmorrhage, and traumatic sub-dural hæmatoma, are used more or less interchangeably, or with only slight variations in meaning, and not infrequently are confused with chronic lepto-meningitis hæmorrhagica interna. I have selected the term "delayed sub-dural hæmorrhage" as the most suitable expression, by which is meant a post-traumatic slowly-progressive venous effusion into the sub-dural space.

The clot is situated over the frontal and parietal lobes of the cerebrum. It is usually extensive and may reach from the frontal to the occipital pole with the greater tendency toward the latter, due doubtless to gravitation; vertically, it may extend from the superior border to the temporal lobe. In thickness it varies from three-quarters of an inch to one and one-half inches, and, according to Trotter², "may, and perhaps usually does, produce the profoundest and least mistakable evidences of widespread compression of the brain. On the other hand, a hæmatoma equally large may produce such slight and atypical manifestations as not even to be suspected during life." The clot, which, as has been before stated, lies between the dura mater and the leptomeninges, is surrounded by a fibrous membrane developed from the partial organization of the peripheral blood. Towards the dura, to which it is slightly adherent but can be readily separated, it varies from one-eighth of an inch to one-quarter of an inch in thickness, while on the pial side it is thinner and semi-translucent. The inside of the membrane is rough and discoloured from irregular blood clot. The contents are usually fluid, dark-greenish or tarry in appearance, due to disintegration or non-absorption of the blood. The lack of absorption is evidently due to the density and impermeability of the circumscribing membrane, a circumstance of considerable significance in prognosis. If the development of this membrane depends on a chemical protective action in the meninges, or to the rate at which the clot is formed, it is reasonable to conclude that there would be a good deal

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of variation in its extent. Furthermore, it is probable that in certain cases the fibrinous organization may be so slightly advanced as not to preclude absorption of the clot, a condition which may possibly explain a partial or complete remission of symptoms. Beyond the limits of the hæmatoma the meninges are normal and the cerebro-spinal fluid is clear and colourless.

From the slow onset of symptoms there can be little doubt that the hæmorrhage is venous in origin, although it is difficult or impossible to trace the source either at operation or at autopsy. Purves Stewart³ states, "the bleeding is due to rupture of the short cerebral veins which enter the superior longitudinal sinus almost at right angles. The veins are firmly fixed at one end in the rigid dura whilst they are attached at their cerebral end to the relatively moveable brain." Since the brain can make a greater excursion in the antero-posterior than in the lateral direction, traumata, whose force is from before backwards, or vice versa, are more liable to produce damage to these veins than are those whose force is exerted from side to side.

The clinical manifestations of delayed subdural hæmorrhage may best be shewn by the reports of four cases which have come under my observation in the past few years.

CASE 1

Male, aged 56; labourer; admitted to hospital on September 13th, 1925, in a more or less semi-conscious condition. From relations it was learned that about two months previously, while engaged in hay-making, he had been thrown from a partially loaded wagon and had struck the back of his head on the ground. He was dazed for a few moments, but was not unconscious. He vomited almost immediately and presently attempted to continue his work but found himself unable to do so. The following day he did not feel completely recovered and consequently returned to his home about thirty miles distant, where his physician was consulted. At that time there was no sign of injury or of any serious damage having been done. He was advised to rest for a few days but not ordered to remain exclusively in bed. He appeared to feel gradually better, but at no time was he exactly right or able to return to work. Just prior to admission to hospital he became much worse and developed considerable mental deterioration.

Examination on admission revealed a very dull and stuporous mentality. It was with much hesitancy that he replied to questions and with difficulty executed verbal commands, often doing neither the one nor the other. His pulse was 76 and his respirations, 18 per minute; the temperature was 98.2°F. The cerebro-spinal fluid was under a pressure of 8 mm. Hg., contained two cells per cm., showed no increase in globulin, reduced Fehling's solution and gave a negative Wassermann reaction. There was no fracture evident in the x-ray films. The ophthalmoscope revealed a slight haziness of the disc margins and relative enlargement of the veins. There were no other evidences of organic lesion of the nervous system.

Shortly after admission his pulse was reduced to 48-52 per minute, his respirations to about 14, but the temperature remained normal. His mentality showed no improvement.

Two weeks after admission he became very much worse, in that total unconsciousness, with involuntary excretory reactions, supervened. His pulse increased to 150 and his respirations to 60 per minute; his temperature rose to 108°F. when on September 27th he died.

No diagnosis prior to the onset of medullary compression was made, although diffuse cedema, following a possible circulatory obstruction, was suggested.

At autopsy "an examination of the head revealed a large circumscribed, walled-off, nut-brown, semi-fluid mass over the left cerebral hemisphere lying between the brain and the dura. This was a blood-clot from an old hæmorrhage which had compressed the brain on the left side. On opening the mass a brownish fluid escaped. The mass was bounded by a more or less definite membrane, organized from the periphery of the clot, and could be separated from the adjacent meninges without damage to them. Microscopical sections were not made. The left cerebral hemisphere was compressed by the extravasated blood, but was otherwise normal. The remainder of the brain was normal and the cerebro-spinal fluid was not discoloured."

This case is interesting and instructive, not only by virtue of the post-mortem findings but also on account of the absence of any definite sign or symptom which suggested the actual pathology. It is true that mental changes were abundantly present, but they were rather a hindrance than a help to a diagnosis, in that no reliable information regarding symptoms could be ascertained. Indeed, in a man of his years, the mentality was such as might readily follow diffuse petechial hæmorrhage of the cortex or ischæmia from prolonged cerebral cedema. The presence of any unusual cerebral compression was not suspected until the terminal signs of medullary cedema supervened, when, of course, the opportunity for surgical intervention had passed. From the clinical picture of this case it would appear a very easy matter to fail in a correct diagnosis and I believe that cases of this kind occur with greater frequency than is commonly supposed.

CASE 2

A male, aged 25 years, was admitted to hospital suffering from headache. He was a baker by occupation and by way of recreation devoted himself to boxing. While so diverting himself, two weeks prior to admission, he had been struck twice on the forehead. Neither blow was particularly severe, but the second one did knock him down. He struck the back of his head on the gymnasium floor, but he was not rendered unconscious or even dazed. A short time, within an hour, after the trauma he vomited and about five or six hours later a slight headache developed. The pain was referred chiefly to the left side of the head, was accompanied by vertigo and with slight remissions became progressively worse, until at the time of examination it was quite severe.

On examination, there was no abnormality of cerebration, speech or articulation. The pupils, which were equal, reacted to light and accommodation. Both optic discs were choked, the left being more advanced than the right. Sensation was normal throughout and movements were powerful at all joints. The reflexes were normal, except for a right ankle clonus and a doubtful right dorsi-flexor plantar response. X-ray examination was negative for fracture.

The cerebro-spinal fluid was under a pressure equal to 16 mm. Hg., and contained 19 cells per cm.; the globulin

was slightly increased; and Fehling's solution was reduced.

A diagnosis of delayed subdural hæmorrhage was made and immediate operation advised.

An opening about one and one-half inches in diameter was made beneath the left temporal muscle towards its posterior limits. The dura which bulged considerably was greenish-black in appearance and on being incised clots and disintegrating fluid blood escaped. There was no definite limiting membrane to the hæmatoma, and when the debris was all evacuated the meninges were normal, but there was some slight compression of the cortex.

During the convalescence he experienced sensory disturbances in the right upper limb and suffered a moderately severe motor aphasia. Both entirely disappeared in the course of a fortnight. One month after operation the fundi had practically returned to normal. Four months after his injury he resumed his occupation and has so continued ever since, a period of somewhat more than a year.

This case presents two interesting features, the absence of any mental abnormality, and the lack of any organized circumscribing membrane to the clot. These deficiencies, which are unusual, may be explained by the fact that operation was undertaken relatively early after the injury and within a day or two after the stage of severe symptoms had become manifest. The clot had not had time enough to organize, nor was the pressure sufficiently protracted to interfere with normal cerebral function. The post-operative aphasia was doubtless due to temporary localized oedema incident to the relief of pressure. These circumstances, together with the celerity with which he returned to and continued at work, lead me to stress the importance of early diagnosis and immediate evacuation of the clot.

CASE 3

A male, aged 53, was seen in consultation on March 11th, 1928. The history was that two months previously while moving a trunk he slipped and, falling backward, struck his right temporal region on a projecting wainscoting. Being slightly dazed he was compelled to sit still for a moment or two, after which he felt entirely recovered and immediately completed the removal of the trunk. The injury was apparently forgotten, and for a time he resumed his usual activities, which included attending meetings and at this particular time a motor-trip of several hundred miles. All of these he was able to do although subsequently on looking back he realized that during this time he did not quite feel his usual self.

About two weeks after his injury a slight headache developed, more particularly in the right temporal region. There was also some dizziness with transient mental confusion. He bore these symptoms for a week when he consulted his physician who immediately put him to bed, where he remained with but little if any improvement until the time of examination; in fact, his mental symptoms were probably a little worse. The headache was more or less constant, but worse on the right side, and he became dizzy on getting out of bed. At no time was there any vomiting. He suffered from insomnia and he himself noticed that his concentration was poor and confused.

On examination his memory was good but cerebration was slow, and he appeared to have difficulty for some little time in grasping the purport of statements made to him. His concentration was very poor, and frequently he would give up in disgust after any protracted mental effort. His speech and articulation were normal. The pupils were unequal, the right greater than the left, but both

were active to light and accommodation. Ocular movements were normal. Ophthalmoscopic examination revealed a partial obliteration of the disc margins and congestion of the vessels, especially the veins. Sensation was normal throughout and movements were powerful at all joints. The deep tendon reflexes of the left side were much more active than those of the right; there was no ankle clonus and the plantar reflexes were both flexor; the abdominal reflexes were present, upper and lower, but more marked on the left side. X-ray examination was negative for fracture. The pressure of the cerebro-spinal fluid was 16 mm. Hg. The fluid contained 6 cells per cm., showed an increase of globulin, and Fehling's solution was not reduced by it. The Wassermann reaction was negative.

After the lumbar puncture he showed some improvement. The puncture was repeated a fortnight later, when the pressure and constituents of the fluid were found to be normal. Improvement continued, in that his headache became less severe, his mental confusion diminished, and eventually he was able to leave his bed, although he has not yet attempted to resume his duties.

Examination on November 23rd revealed a normal condition of mentality, speech and articulation. The pupils were equal and active to light and accommodation but the optic discs were still hazy with obscuration of their margins. There were no other abnormalities except a relative increase in the left knee-jerk and a more active left than right plantar response.

In this case a diagnosis of delayed sub-dural hæmorrhage was made. Operation was advised but was declined, chiefly because there was some improvement after acupuncture. The diagnosis was made on the history of a trivial injury, which was followed by a period of mild and then one of severe, symptoms, in which latter, headache, vertigo and mental aberration were prominent, as well as on the clinical findings of blurred discs, changes in the spinal fluid, and asymmetry of the reflexes.

Whether or not a true sub-dural clot with characteristic limiting membrane was present is problematical. The history and clinical findings would suggest slow cerebral compression while the protracted recovery would indicate gradual absorption. The case is interesting, in that a patient with fairly typical symptoms and signs of delayed sub-dural hæmorrhage could show, without surgical intervention, a gradual progress toward recovery. I believe, however, that early evacuation of these blood cysts expedites a return to normal health.

CASE 4

A male, aged 37, a woodsman by occupation, was admitted to hospital suffering from vertigo and headache. Two weeks previously, while walking along a log, he slipped and falling backwards struck his occiput. He was semi-conscious for a few moments, but, being assisted by a fellow-workman, he was able to walk to camp a distance of about half a mile. The following day he attempted to work, but was compelled to desist on account of headache and dizziness. There was no improvement in his condition for three days, when he decided to leave the woods and come to the city for advice. The journey necessitated a two-days' boat trip, during which time he vomited on several occasions, but he did not know whether the emesis was the result of his intracranial condition, mal-de-mer,

or alcohol, to the periodic consumption of which he had been seriously addicted.

After being in hospital several days he was transferred to my service, at which time the headache was very severe, the cause of bitter complaint. He had been shewing mental symptoms, in that on several occasions he had refused nourishment and the nurses' ministrations and also had the habit of wandering aimlessly around the ward at night.

On examination, his memory was found to be uncertain. He would reply to questions and execute simple verbal commands; his manner was simple and childlike, but I subsequently learned that in part that was congenital. He spoke and articulated normally. His pupils, which were equal, reacted to light and accommodation, and his ocular movements were normal. In both eyes there was marked papillitis and fairly extensive retinal hemorrhages. There were general hyperæsthesia and irritability to cutaneous stimuli, so much so that palpation of his lumbar spines, in an attempt to puncture the theca, caused so much flinching and commotion that a general anæsthetic had to be given. Movements were powerful at all joints, and the reflexes reacted normally, except for an ankle clonus on the left side. His pulse was slow, varying from 52-68 per minute, and the blood pressure was 132 systolic and 76 diastolic. X-ray examination was negative for fracture or other abnormality. The cerebro-spinal fluid, which was under normal pressure, contained 6 cells per cm.; there was no increase in globulin and the fluid did not reduce Fehling's solution. The Wassermann test on both blood and cerebro-spinal fluid was negative.

Delayed subdural hemorrhage was diagnosed and operation advised. On account of the absence of any speech abnormality and the presence of a left-sided ankle clonus the lesion was assumed to be on the right side. A right fronto-parietal opening was made. The subjacent dura was dark, bluish-green in colour and did not pulsate. On section, dark fluid blood was evacuated from a cavity, which was bounded on all sides by partially organized clots resembling a membrane, and had a capacity of approximately six ounces. The membrane, which was more or less firmly adherent to the meninges, extended from the ascending frontal convolution in front to the parieto-occipital sulcus posteriorly and downwards to the infra-lateral margin. It varied in thickness, being greater externally than internally, and was attached to the meninges. Gentle separation and removal revealed a healthy arachnoid, and the cortex which had been severely compressed—the clot was something over an inch in thickness—began to pulsate and expand. No bleeding points were found.

The patient made an uninterrupted, uneventful and comfortable recovery. On regaining consciousness the headache had entirely disappeared. The fundi gradually cleared; the hemorrhage and exudate were absorbed; and in a few months only a very slight haziness of the disc margins remained; the sight was not impaired. About ten months after his injury, during which time he remained well and had been doing light work, for he was afraid to go back to the woods, he developed fairly typical epileptic seizures. He was given luminal (one grain a day) which appeared to control the attacks. He was kept under observation for six months, and as there was no recurrence of the seizures he once more returned to work.

In analyzing these histories one notices at the onset that the patients were all males. It is not to be inferred that females are immune, but that in the ordinary course of life the male is more exposed to injury.

The ages varied from 25-56 years, and the condition occurred in each case in apparently healthy brains.

Two were injured in the course of their usual occupations, one during recreation and the fourth while engaged in the ordinary daily activity of

any householder. An outstanding fact is that they all gave a definite history of an injury to the head and related all their subsequent symptoms thereto. In no case was the injury severe, and in the last three it might almost be considered relatively trivial. At any rate, none was rendered unconscious or even, at first, considered the blow to be at all serious. Besides the lack of severity it is of some significance that in three cases the force was to the front or back of the head and the direction of the violence therefore antero-posterior.

Each of these patients experienced a prodromal period of mild and indefinite symptoms—slight headache, recurring vertigo and an obscure feeling of dysphoria—which appeared shortly after the accident. These phenomena persisted or probably became somewhat worse, for one to three weeks, when severe symptoms supervened.

In the second stage the outstanding features were headache, which in all four cases was severe, progressive, and more or less constant; vertigo, present in three cases, but neither severe nor continuous; and some cerebral dysfunction. In all the cases but one there was considerable deterioration in mentality; memory and concentration were poor; cerebration was generally slow and accompanied at times by some confusion.

On physical examination it is remarkable how few focal signs were present. In all cases the pupils reacted normally and there was no paralysis. Sensation was normal, except in the one patient with universal hyperæsthesia, a condition due, in my opinion, more to distorted mental processes than to any definite organic cortical lesion. Three cases shewed asymmetry of the deep reflexes; and the two who underwent operation, an ankle clonus on the contra-lateral side. Ophthalmoscopic examination revealed changes in the fundi, which varied from a congestion of the disc with hazy margins to a well marked optic neuritis with extensive retinal hemorrhages. In no case was there fracture of the skull.

Lumbar puncture gave valuable information. In three cases the cell-count was above normal, and there was either increase in globulin or failure in the reduction of Fehling's solution. Two cases had definite increase in the pressure, and it was rather an astonishing fact that the one case with normal pressure had the severe retinal hemorrhages. In all probability the explanation of this apparent anomaly lies in the fact that the clot had so pressed upon the tentorial opening as to cause obstruction in the aqueduct of Sylvius

and subsequently an internal hydrocephalus. This, of course, would produce a high intracranial pressure with no increase in the spinal canal. The Wassermann reaction in every case was negative.

The diagnosis is important. Obviously the earlier the condition is recognized the better will be the prospects of recovery. Trotter² says, "In a case where there was a clear history of head injury in a subject previously quite healthy, followed by the slow development of severe headache and slight but definite mental change, I should not hesitate to advise an exploratory operation in the absence of any other definite physical sign or symptom." Cerebral tumour, abscess of the brain, and oedema, are liable to be confused with delayed sub-dural hæmorrhage. In tumour the development of symptoms is slower and more insidiously progressive, and it is unusual to get a definite history of trauma immediately preceding the disability. Abscess is often difficult to differentiate, but here again injury is not a specific factor, and there is usually a history of some septic process adjacent to the brain or of a constitutional infection. Twice I have seen deep seated cerebral abscess follow exanthematous fevers. To distinguish between an oedematous brain and an encysted hæmatoma is sometimes very difficult. Of considerable significance is the reversal of symptoms. In the former, the injury is more severe and the serious symptoms which develop early, tend to improve; in the latter the early stage is characterized by the absence of or only slight symptoms, which after a time develop and become progressively worse. Furthermore, the hæmorrhagic cases usually show more marked mental aberration.

In the three cases where the diagnosis was confirmed either by autopsy or at operation, one side of the brain only was involved. Not infrequently the lesion is bilateral, and when one remembers the etiological factors of its production it seems remarkable that both sides are not affected in nearly every case. Simultaneous compression of both hemispheres confuses the clinical picture, and bilateral symptoms, even though they be varied and fleeting, should always suggest the probability of a double lesion.

Treatment is always surgical. It is doubtful if an encysted clot ever completely absorbs, and, even in those cases where resolution appears to have taken place, convalescence is slow and distressing, and residual symptoms may remain.

The operative procedure is not difficult. Either

an osteoplastic flap may be turned down, or an opening one and one-half inches to two inches in diameter may be made beneath the temporal muscle. Each method has its advocates. The flap necessitates more time, a factor of some importance when both sides have to be explored, but it has the advantage of leaving the skull more intact. In either case evacuation of the clot, which is all that is required, can be readily accomplished. Separation of the fibrous membrane from the dura and arachnoid must be carried out gently, but presents no technical difficulties. The source of the hæmorrhage does not require to be found and once the detritus is removed the brain begins to expand. The dura is closed with fine plain catgut and the sub-dural space drained by collapsible rubber tubing for twenty-four hours.

SUMMARY

The salient points of this condition may be summarized as follows:—

1. An extensive sub-dural clot produced by venous hæmorrhage and surrounded by a fibrinous membrane.
2. The etiological factor appears to be a trivial head injury, usually in the frontal or occipital regions, without fracture or even unconsciousness.
3. A period in which symptoms are absent or slight.
4. A later stage of severe symptoms, appearing a few days or a few weeks after the injury.
5. Headache, usually constant, becoming progressively worse, often referred to the affected side and sometimes accompanied by vertigo.
6. Alterations in mentality, slight amnesia, slow cerebration and confusion.
7. Ophthalmoscopic changes, which may vary from congestion of the disc to extensive retinal hæmorrhages.
8. Abnormal cerebro-spinal fluid, both physically and chemically.
9. Early diagnosis and treatment by surgical intervention is important, especially where the lesion is bilateral.

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THE RATIONAL APPROACH TO DISTURBANCES OF NUTRITION IN INFANCY*

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THE history of pædiatrics is the story of an attempt to treat nutritional disturbances without a complete understanding of their etiology. Treatment in practice is always necessary because, whether it is efficacious or not, it is the logical demand on the part of the public, and any doctor doing work in an outpatient department realizes the necessity of prescribing what we are fond of calling "placebos."

The value of the treatment given is a more difficult thing to estimate, and, because of the great emphasis that had been laid on treatment, Osler reacted against therapeutics and emphasized the importance of diagnosis. The sick infant suffering from a nutritional disturbance presents a difficult problem in diagnosis, but the treatment to be successful should follow an accurate diagnosis.

Some years ago the Vienna School attempted a pathological classification of nutritional disturbances in infancy without success. In some sick infants suffering from diarrhoea, the findings at autopsy were entirely negative, whereas in other cases definite ulcerative changes were found in the intestines. This sort of classification therefore soon outlived its usefulness, for identical and entirely normal findings in the bowel were seen in cases presenting the most variable symptoms, in which, according to accepted teaching, severe anatomical lesions were to be expected. In other words, infants died from severe disturbances of nutrition without any evident organic change in the gastro-intestinal tract. It therefore became necessary to broaden our conception of these gastro-intestinal disturbances, and to recognize that such important changes in general health implied recognition of a general disease and, further, that prognosis often depended upon constitutional status rather than upon the intestinal lesion. In a word, the term "gastro-intestinal disturbances" had become too narrow and in its place has appeared the phrase "disturbances of nutrition." Practically, this heading might be said to combine the three gastro-

intestinal disturbances which we most frequently encounter under the complaint of: (1) vomiting; (2) diarrhoea; (3) failure to gain. It is my hope to suggest the logical method of approach from these very common complaints.

We are all too familiar with the attitude of the laity, who so often expect a change of formula to work wonders, and we have all watched patients go from one physician to another, only to have the formula changed without any material benefit. Pædiatricians, to a large extent, gain their livelihood by prescribing feeding formulæ, but the time has arrived when there should be a reaction against over-enthusiastic irrational dietetics in infancy, and we should profit from the experiences of the internists and realize the importance of making a diagnosis, though still remembering the necessity of treatment. A few years ago at any meeting of children's specialists the subject of infant feeding was sure to be discussed; to-day it is rare to find the subject mentioned, a sure indication of advance in our knowledge.

Quite recently, Marriott, Jeans, and others have emphasized the importance of infection, particularly in respect to mastoiditis. Marriott, with his forceful personality, has established a school which regards many of the cases of disturbances of nutrition in infancy which do not do well as caused by some obscure infection, but before American pædiatrics had become formally established Czerny emphasized the importance of studying disturbances of nutrition in infancy from the etiological point of view. He said that, broadly speaking, all cases should be considered under one of the following etiological categories: (1) constitution; (2) food; (3) infection; (4) mixed. These groups are broad and require further subdivision. Professor Blackfan, of Harvard, has been attempting to classify his cases under these headings in a slightly different way. He, apparently, from study of the cases admitted to the Children's Hospital in Boston, came to the conclusion that the rational method of approach was through the etiological side, and allocated his cases in one or other of the following groups: (1) organic; (2) infection; (3) food; (4) environment.

*Read at the Annual Meeting of the Canadian Society for the Study of Diseases of Children, June 30th, 1928, Vancouver, B.C.

A little reflection makes it quite evident that there is no real difference between Czerny and Blackfan, except that Blackfan has added a group which one would expect to find added in the United States, where the importance of psychology is so acutely realized and appreciated. The classification that I propose to present to you is drawn from a consideration of both Czerny's and Blackfan's.

phase of the subject that is occupying our attention to-day.

The classification outlined below can be applied to any one, or to a combination, of the symptoms enumerated above, namely, vomiting, diarrhoea, failure to gain.

It requires to be applied in a reasonable manner and presupposes some knowledge of pædiatrics.

THE CLASSIFICATION SUGGESTED

A. Vomiting B. Diarrhoea C. Failure to gain	i Constitutional or Organic	{ Congenital	{ Anatomical, <i>e.g.</i> , pyloric stenosis. Physiological, <i>e.g.</i> , rumination; endocrine disturbances, <i>e.g.</i> , cretinism.
	ii Infection	{ Acquired Parenteral Enteral	{ Anatomical, <i>e.g.</i> , duodenal ulcer. Physiological. <i>e.g.</i> , otitis media; pyelitis; tuberculous meningitis. <i>e.g.</i> , dysentery.
	iii Food	{ Quality Quantity	<i>e.g.</i> , fats; carbohydrates; proteins; salts; vitamins.
	iv Environment	{ In home Outside	<i>e.g.</i> , volume and calories.

Finkelstein's clinical classification of eutrophy, dystrophy, and atrophy can be used in conjunction with the etiological classification, and, from the point of view of treatment, very materially helps the physician, but it is not this

Of course, some subdivisions assume a more important position in cases that are vomiting, and other subdivisions in cases of diarrhoea or failure to gain, but if the broad outline is kept in mind more accurate diagnoses should be made.

SPONTANEOUS RUPTURE OF THE INTESTINE IN THE NEW-BORN.—Thomas H. Russell adds the report of one case of spontaneous rupture of the intestine in the new-born to the twenty-two already found in the literature. In five of the cases the rupture occurred in intra-uterine life, the proof of this being the presence of organized adhesions, absorption of the fluid elements of the meconium with the presence of inspissated meconium, and concretions of fatty acid crystals and cholesterolin. These five cases showed a chemical or physical peritonitis caused by the presence of meconium which had been proved to be sterile until after birth, and had resulted in organized adhesions. Secondary infection had occurred in these five cases after birth from the micro-organisms then present in the intestines, with the later development of abscesses or peritonitis, from which the infant died. In fourteen, the rupture occurred during the process of labour and as a result of this process. Other than the cases of imperforate anus, only three cases of rupture of the small intestine were found in this series and they were all at the site of Meckel's diverticulum. The sigmoid was the most frequently ruptured—seven times—the transverse colon four times, the splenic flexure three, the cecum two, the descending colon twice and the rectum once. (In one case there were three complete ruptures.) In the four cases in which the rectum or anus were imperforate the rupture was once in the cecum, once in the descending colon, once in the transverse colon and once in the rectum. It is evident that there are two distinct types of spontaneous rupture. In the first type the rupture occurs in intra-uterine life,

as evidenced by the presence of well organized adhesions and inspissated bile, even when death has occurred within two or three days after birth.—*J. Am. M. Ass.* 91: May 5, 1928.

ECTROPION OF LOWER EYELIDS FOLLOWING BURNS AND SCALDS: A NEW EARLY PATHOGNOMONIC SIGN.—Cicatricial ectropion of the lower eyelids is a frequent and serious result of burns and scalds involving the face about the eyes. By no means all burns of this area result in ectropion. When recognized early, before the condition is well established, simple preventive measures may abort the process. Therefore it is important to diagnose this complication at the earliest possible moment. The sign described here is, in the opinion of Samuel Gordon Berkow, the first positive manifestation of cicatricial ectropion of the lower eyelids, following burn or scald. To determine whether the eyelids are sufficiently involved for cicatricial ectropion to result, the patient is instructed to roll the eyeballs inward and upward; or a finger is placed on the patient's forehead between the eyes, and the patient is instructed to try to look up at the finger. As the eyeballs roll inward and upward, if a space, or interval, forms between a lower eyelid and the corresponding eyeball in the outer (lateral or external) third of the palpebral aperture, and persists as long as the eyeballs are kept in the upward and inward position, cicatricial ectropion is to be expected. Preventive measures should be instituted at once.—*J. Am. M. Ass.* 91: May 26, 1928.

Case Reports

LEIOMYOSARCOMA OF THE KIDNEY*

By N. E. BERRY, M.D.,

Montreal

The early recognition of tumours of remote organs has been a much more difficult proposition than of those occurring on exposed surfaces and in accessible viscera. This difficulty has been largely responsible for the evolution of our modern scientific instruments, and the perfection of x-ray and other clinical methods of examination and treatment. While the common malignant growth of the kidney, the hypernephroma, was recognized and described by Grawitz nearly fifty years ago, little progress was made from the point of view of diagnosis until the advent of the cystoscope, with the development of ureteral catheterization and pyelography scarcely more than a decade ago.

The benign tumours of the kidney, as such, are of little clinical importance. They comprise fibroma, fibromyoma, lipoma, adenoma, hæmangioma, lymphangioma, and papilloma. Large solitary cysts and multiple small cortical cysts are also common. The adenoma, fibroma, and lipoma are of importance, in that they may assume malignant characteristics, while the papilloma and hæmangioma, when associated with the renal pelvis or papillæ, are likely to cause hæmaturia. Of the malignant growths the hypernephroma group comprises the majority of cases. Carcinoma, of either the medullary, adenomatous or papillary types, is fairly common, and exceptionally one meets with squamous-celled carcinoma which arises from the renal pelvis. True sarcoma is not common. Teratoid growths are usually seen in children and may be composed of a great variety of tissues. It is hoped that this case will be of interest to the pathologist because of its excessive rarity, and to the clinician because of the difficulty in diagnosis characteristic of renal tumours.

CASE REPORT

Mrs. C., aged 26; admitted June 1, 1926, com-

* Report of a case from the Department of Urology, Royal Victoria Hospital.

plaining of pain in the right loin, dull and aching in character; and frequency of urination, six or seven times during the day and two or three times during the night.

History of Illness.—She first noticed the pain fourteen months previously, during the seventh month of her first pregnancy. It was dull, aching in character, confined to the right loin, and was little affected by exercise or rest. There was an associated frequency of urination amounting to six or seven times during the day and two or three times at night. Otherwise, she felt well and continued in good health to the ninth month, when a Cæsarian section was performed. The symptoms continued after her convalescence as before and three months later she was admitted to the urological service of another hospital for investigation of the right kidney. An exploratory operation was performed and a tumour was demonstrated involving the lower pole. Owing to excessive superficial hæmorrhage it was deemed inadvisable to do anything further at the time.

Her symptoms continued as before, becoming gradually accentuated, and she was admitted to this hospital eight months later. There were no additional symptoms and there had been no hæmaturia at any time.

Physical examination.—She was a rather obese, healthy looking woman in no apparent distress, showing no signs of weakness, anæmia or loss of weight.

The general physical examination showed nothing particularly abnormal; blood-pressure, systolic 110, diastolic 75. The lower pole of the right kidney was palpable, but no mass was demonstrated. The left was not palpable. There was no tenderness on either side.

Urine Analysis.—Clear, acid, specific gravity 1.018; albumin a trace, sugar negative; microscopically, occasional white blood cells, no red blood cells.

Her kidney function, as determined by 1 c.c. phenolsulphonephthalein intramuscularly, was a little low; first hour, 35 per cent; second hour 20 per cent; total 55 per cent.

The pyelogram was the only positive finding in the cystoscopic examination, showing a some-

what dilated renal pelvis and a very faintly outlined shadow, apparently attached to the lower pole. This shadow remained constantly present in all the plates taken. In view of this shadow and the very definite assurance of the previous operator as to his findings, operation was decided upon. The kidney was found to be markedly adherent, with many adventitious vessels, and was freed with difficulty. There was a large growth involving the lower pole. The kidney was removed. There apparently was no glandular involvement. The patient made an uneventful recovery and was discharged on June 24, 1926, seventeen days after operation. She reported on January 2, 1929, that she was well and there was no evidence of metastases.

PATHOLOGICAL REPORT

The specimen consisted of a markedly enlarged kidney, the upper two-thirds normal, the lower third replaced by a large whitish firm growth.



FIG. 1.—An illustration showing the lower pole of the kidney replaced by a large growth with a capsule, which is well defined in some areas while in others it is indistinct.

Microscopic Examination (by Dr. Waugh):

"Sections show a tumour-mass, consisting of intertwining bundles of smooth muscle cells which vary in

maturity in different areas. Some show development into relatively well-formed fibrillar elements, while others are more embryonic with little fibrillar development and large vesicular nuclei with occasional mitotic figures. The growth is separated from the remaining kidney parenchyma by a well formed capsule which in places has been invaded and split by the growth. The kidney parenchyma beyond the tumour is well preserved. Special stains substantiate the pure myomatous character of the neoplasm. *Diagnosis: Leiomyosarcoma.*"

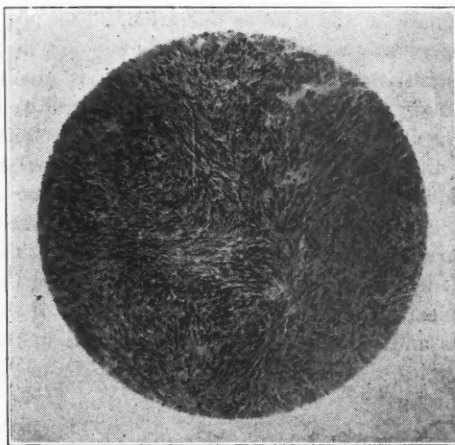


FIG. 2.—Low-power view: showing general arrangement of the muscle bundles.

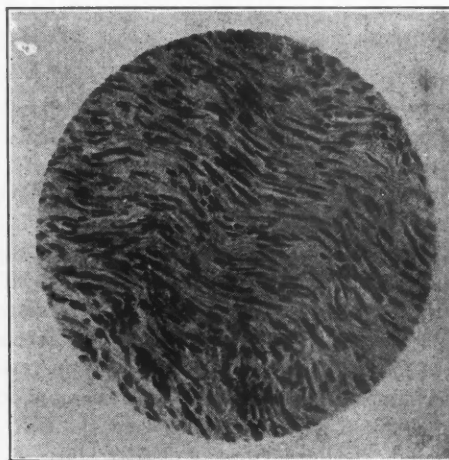


FIG. 3.—High-power view: showing the fibrillar structure with variations in the maturity of the growth in different areas.

This growth lies on the borderline between the benign and malignant neoplasms. Such tumours are very rarely met with in the kidney. I have been unable to find a single reported case in the recent literature. When they are found, a large majority of the cases are in young children, and not infrequently they are bilateral. The occur-

rence of this type of growth in the kidney may be explained, first, as a sarcomatous degeneration from myomata, which are not infrequent, are congenital, and often bilateral; or secondly, as originating in embryonic "rests." This particular growth has very possibly arisen from a benign leiomyoma and its capsule and relative maturity enabled one to give a favourable prognosis at the time of operation. This prognosis given two and a half years ago has been substantiated, and the other kidney is almost certainly normal, as she is to-day alive and well.

The diagnosis of tumour of the kidney presents no difficulty when the classical features of tumour, pain and hæmaturia are present, but at this stage metastases have almost certainly occurred; hence, in order to be able to benefit the patient, the diagnosis must be made before the classical picture is manifest. An analysis of the signs and symptoms of 35 cases treated in the urological department of this hospital shows the following:—

	Initial	Associated
Pain	16	11
Hæmaturia	14	9
Tumour	3	20
Weakness and loss of weight	2	7
Anorexia		2
Varicocele		2

Each symptom must be considered as it appears and careful investigation carried out. Good pyelography is an invaluable aid and is essential for early diagnosis.

Pyelographic changes suggestive of tumour include: obliteration of a calyx; elongation of one or more of the calyces; distension or retraction of one or more calyces, or of the whole pelvis; encroachment on the pelvic lumen, causing flattening of the pelvic contour or obliteration of the true pelvis; displacement of the renal pelvis and deformity of the uretero-pelvic junction.

Similar pyelograms may be produced by hydronephrosis, pyonephrosis, tuberculosis, blood clot, calculi, pressure, etc., but the history, physical examination, and cystoscopic findings will generally permit of a correct differential diagnosis being made. Incomplete filling of the renal pelvis with iodide may also give misleading pictures, but the urologist who interprets his own pyelograms will not be so misled.

This case illustrates the fact that one must often pin the early diagnosis on a single classical

feature, if that feature can be substantiated by a characteristic defect in the renal pelvis or calyces as determined by pyelography.

A CASE OF ECTROMELIA

By H. R. L. DAVIS, M.D.,

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Case of congenital absence of the extremities are of sufficient rarity to warrant the publishing of a case. The patient was a full-term female child, born without arms but otherwise normal. The child weighed at birth 3,400 grammes. Delivery was normal, and the presentation left occipito-anterior.

The shoulder-girdle was present but in the normal site of the arms were mere vestiges. On the right side there was a sessile nipple-like structure about one-quarter of an inch in diameter. On the left side was a small knob about one-quarter of an inch in diameter by half an inch in length, attached to the body by a pedicle, one and one-quarter inches in length and one-eighth inch in diameter. I was able to obtain both a photograph and a skiagram, both of which are presented herewith.

The following measurements were taken on the eighth day:—

Diameters: bi-parietal 9.0 c.m.; bi-temporal 8.0; occipito-mental 17.0; sub-occipito-bregmatic 10.5; occipito-frontal 12.0.

Circumferences: occipito-frontal 35.2; sub-occipito-bregmatic 34.5; occipito-mental 38.0; shoulders 33.7.

Length 50 cm.

Instances of congenital absence of the extremities have been reported from time to time, and a large number of examples were collected by Gould and Pyle.¹ These authors quoted from many previous writers as far back as Paré. It was in 1837 that Saint-Hilaire² classified these deficiencies. He divided malformations due to defect into three classes:

"*Ectromélie*" — The condition where the limbs are absent or nearly so. This term applies only to cases in which the deficiency is the result of arrest of development, not of intra-uterine amputations.

"*Hémimélie*" — The condition when the limbs are very incomplete terminating as stumps and possessing either no digits or very imperfect ones.



"*Phocomélie*" — The condition where the limbs are absent, the hands or feet being attached immediately to the trunk.

It will be seen that the present case is one of



ectromelia. This deficiency may be unilateral or bilateral. Last year Price,³ in Indiana, had a case report on deficiency of all four extremities. Neilson,⁴ in Keating's *Cyclopædia*, quoted two

similar cases; those of Hardy in Baltimore in 1834, and Hare in London in 1859. He also quoted four cases similar to that now being reported.

I am indebted to Dr. W. LeM. Carter for permission to publish this case and to Miss D. Jackson who made the x-ray photograph.

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ACUTE YELLOW ATROPHY OF THE LIVER IN A BOY NINETEEN MONTHS OLD

BY WARD WOOLNER, M.D. (TOR.),

Ayr, Ont.

Acute yellow atrophy of the liver is a very rare disease at any age, but is particularly uncommon in children under two years of age. Less than fifty cases have been reported in children.

CASE REPORT

The history of the case herewith submitted is as follows:—

W. C., male, aged 19 months. The writer was present at his birth. The labour was not difficult, though low forceps were used. He was the mother's twelfth child. His parents are living and well. Eleven of a family of thirteen are living and all well. One child was killed in an accident and another died of pneumonia.

This boy was particularly well developed and had never been sick until December last, when he had a mild attack of influenza. His last illness began about January 3rd. The writer was attending the mother in her thirteenth confinement, and noticed the jaundiced condition of the skin and conjunctivæ. The urine contained bile-pigment and the stools were characteristic of jaundice. Since we had had about thirty cases of an infectious jaundice in the community during the autumn months, a diagnosis of this condition was made. The boy was not ill. His

temperature was normal and his pulse slow. He was not sick enough to remain in bed.

On January 10th, I was again called to see the child and found him very ill. He was very markedly jaundiced, being of a greenish-yellow colour. He was vomiting blood and had hæmorrhages under or into the skin in many parts of his body. The urine was scanty and very brown in colour. The bowels were constipated. He was very restless and passed from one mild convulsion into another. Since there seemed to be a diminished liver dullness a diagnosis of acute yellow atrophy was made. The symptoms of cerebral irritation became more severe and the child died in convulsions on January 15th, after twelve days' illness.

We were able to procure a partial autopsy and sent the liver to Dr. W. L. Robinson, of the Department of Pathology, Toronto General Hospital, who confirmed our diagnosis.

The pathological report is as follows:

The liver measured 14 by 8 by 6 cm. The surface was smooth and the anterior edge somewhat thinned out. On section the cut surface was of a reddish-yellow colour. The lobular markings were rather indistinct. The liver substance was quite soft and doughy in consistency. The gall-bladder appeared normal. About the cystic ducts were three or four enlarged lymph-glands, measuring up to 2 cm. in diameter.

Microscopically, the liver lobules were difficult to distinguish, as they were almost completely obliterated by the degeneration of the liver cords and the collapse of the stroma. The central portion, up to three-quarters of the lobule, showed complete necrosis of the liver cells. The stroma was intact and was diffusely infiltrated with endothelial leukocytes and lymphocytes. Many of the endothelial leukocytes were filled with cellular debris. At the periphery of the lobule small portions of liver cords were intact, although individual cells were swollen and somewhat granular in appearance. The periportal areas showed a slight general increase in fibrous tissue, which was rather densely infiltrated by lymphocytes, plasma cells, eosinophiles, and endothelial leukocytes. The bile capillaries in the periportal regions showed proliferative changes, and appeared to be extending out irregular short branches into the liver lobules. This process brought out the bile capillaries into such relief that they stood out very prominently

as a garland about the degenerating masses of liver cells.

Diagnosis.—Acute yellow atrophy of the liver.

Syphilis and phosphorus poisoning are given as the two common causes of this disease in childhood. Neither of these seem to be the probable cause here. The enlarged glands around the cystic duct might indicate an infection. Might the influenza have been the cause in this case?

HYDATID DISEASE OF THE LUNG WITH SPONTANEOUS RECOVERY

BY S. ORTENBERG, M.D.,

Montreal

Although hydatid disease is endemic in the Argentine, in Australia, and in southern Russia, it is of rare incidence in Canada and the United States.

The commonest site for the disease is in the liver; the next frequent location is in the lung, in the ratio of nine to one. Moreover, the pulmonary focus, which is usually of primary occurrence, is extremely rare under the age of fifteen. Infection almost invariably takes place in early childhood, development is slow, and symptoms leading to its recognition are most common in the third and fourth decades. Out of 62 cases of echinococcus cysts in children, Klose¹ enumerates only 4 occurring in the lungs, and all these were of the primary variety, while Magath's¹ series of 93 in children, only two exhibited the pulmonary site as early as 10 years.

The secondary form of hydatid disease in the lungs may be due to direct rupture of a liver cyst, to metastasis via the venous circulation, or to transmission through the lymphatics from a hepatic or a peritoneal focus. When carried by the bloodstream the disease in the lung is invariably found to be multiple and distributed bilaterally; the cysts are relatively small and uniform in size, and they are usually located in the peripheral and subpleural portions of the lungs.

Primary echinococcus cysts in the lung, as elsewhere, develop slowly and without symptoms, and symptoms, in the primary form, may antedate diagnosis for as long as six years. On the other hand, in the secondary or metastatic phase, patients die within three years of the development of symptoms.

Diagnosis of the pulmonary cyst is, of course, clearly established after spontaneous rupture, by the finding of hooklets, scolices, or portions of cyst membrane. But diagnosis may be fairly well confirmed in unruptured cases by x-ray plates and fluoroscopy, which show a circular, sharply defined shadow. Other methods of examination are: the complement fixation test of Axhausen; the precipitin reaction test; the Abderhalden reaction; the intradermic reaction; the cutaneous test.

These tests have been found reliable in 90 per cent of cases, with one important reservation; the presence of other tæniæ will vitiate the validity of the reactions.

Pathologically, there is a differentiation that is of advantage therapeutically in that the connective-tissue capsule about the cyst in the pulmonary location is thinner than that in the liver. Hence, the favourable outcome by vomica, as illustrated in the patient here reported, of many of the cases occurring in the lung. The surgical removal of pulmonary cysts is manifestly fraught with grave risks, and the operative mortality in children is as high as 15 per cent. Nor is spontaneous rupture free from danger. Immediate death from suffocation may occur; or death may result from an acute intoxication of an anaphylactic nature, caused by the sudden liberation of the cystic fluid into the bronchioles and acini.

REPORT OF A CASE

In November, 1923, when this patient was twelve years old, she complained of a pain in the lower right chest and a dry cough. For one or two weeks previously there had been a slight cough for which medical advice had not been sought.

Examination revealed a temperature above 102° F., a rapid pulse, a hectic flush of the cheeks, but no cyanosis and no respiratory distress. At the right base, posteriorly, a rounded area of dullness was made out, over which the breath sounds were absent and the tactile and vocal fremitus diminished. A few days later, some fine moist râles were made out at the periphery of this area.

Ten-days after the onset of the illness, during a fit of coughing, the patient nearly choked in the act of bringing up a large quantity of fluid together with what, according to the father's

description, looked like a small white crumpled handkerchief. The entire expectoration was retained in a tumbler, and when examined three days later, was found to consist of five or six ounces of a cloudy watery fluid, holding a partially suspended gelatinous sediment. Microscopically, it showed an abundance of pus, elastic fibres and alveolar cells, but no hooklets. There was no hæmoptysis, either then or at any time during her illness. Puncture of the pleura was unproductive.

Hydatid cyst, with a peripneumonitis, was suspected, as opposed to encysted empyæma, because of the knowledge that less than two years ago two echinococcus cysts had been enucleated from the liver.² It is of interest that some three weeks after the operation the patient had a sudden rise of temperature to 104,° F., and amongst other findings exhibited an "area of impaired breath sounds at the base of the right lung below the angle of the scapula," and that this impairment had persisted for many weeks while under observation.

An x-ray of the chest taken three days after spontaneous evacuation of the cyst was reported as showing, "the presence of a dense, homogeneous shadow, about the size and shape of an orange, situated in the outer portion of the right base, and defined best with the film posteriorly. The margins of this shadow are convex and fairly definitely outlined. There is a narrow rim of increased radiability internal to this shadow, and a similar broader condition below and externally. These areas are regarded as indicating the presence of non-involved lung tissue. . . . Right half of the diaphragm indiscernible; left half clear. . . ."

The girl made a rapid recovery following the vomica. An x-ray taken five weeks after the first plates revealed only "a small area of mottling in the middle portion of the right lower third of the chest. A clear area separates this region from the diaphragm. The remaining portions of the lung fields are clear. . . ."

A third x-ray taken on December 5, 1928, five years after these incidents, showed "in the base of the right lung, in the ninth interspace, a circular shadow of calcification. This is the scar remaining from the spontaneous cure of an echinococcus cyst." The remaining lung fields were clear and showed no recurrence of the disease.

COMMENT

Since there were no other cysts in the thorax, it is thought that this was probably a secondary infection, metastasising from the liver, not through the venous circulation but rather through the lymphatics. The possibility of it being a primary focus coincident with the original hepatic involvement might be ruled out on the grounds that lung cysts develop more rapidly than those in the liver; that shortly after

operation on the liver a suspicious condition appeared in the right base which persisted as long as the patient was under observation; and, lastly, that subjective chest symptoms did not manifest themselves until almost two years later, the recognized sequence of events in the metastatic form of echinococcus disease of the lung.

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Clinical and Laboratory Notes

SOME NEW INSTRUMENTS FOR THE INJECTION OF LIPIODOL*

OIL-GUNS AND A COMBINED CANNULA AND MIRROR

BY NORMAN BETHUNE, M.B. (TOR.),
F.R.C.S. (Ed.),

Montreal

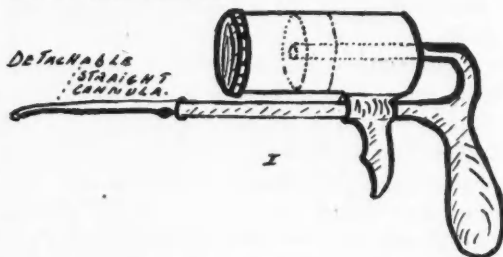
There are seven methods of introducing lipiodol into the bronchial tree for diagnostic purposes: (1) through a bronchoscope; (2) by means of a trocar and cannula passed through the crico-thyroid membrane; (3) through the laryngoscopic tube, by direct illumination; (4) through a tracheal catheter, by indirect illumination of the larynx; (5) through a curved cannula by indirect illumination into the vestibule of the larynx; (6) through a straight cannula on to the base of the tongue; (7) and the passive or buccal method.

All of these methods, with the exception of the last, require some form of syringe. This is usually a Luer glass syringe of 20, 30, or 50 c.c. capacity. Its disadvantage is its size, its unwieldiness and breakability. It requires, for steadiness, one hand to support and the other to push the plunger home. As used in the easiest and commonest method, (6), the larger sizes (30 and 50 c.c.) are not easily held in the fingers of the right hand unsupported, while the length of the plunger, fully extended, prevents the application of strong thumb pressure to drive the oil out, even though it is, as usual, previously warmed. In addition, the direction of thrust of the syringe and cannula is forwards, so the tip of the cannula may be displaced from its original position and the oil injected into the oesophagus instead of into the larynx. This tendency to a forward thrust is attempted to be met by a

barrel grip for the right hand fingers, while supporting the forward end of the barrel in the left hand, with the cannula resting against the upper teeth. If a laryngeal mirror is used, as in method 5, the right hand must do all the work, unless of course, the mirror is withdrawn after the cannula is placed in position.

The glass tip of the syringe is apt to be broken off if side pressure is applied to the attached cannula. Oil on the operator's fingers makes the syringe slippery and difficult to control, even with a grip. The unsteadiness of control produces an uneven flow of oil.

To overcome these difficulties, an all-metal syringe was made in which the force used to expel the oil was exerted against the braced forearm. The instrument has a pistol grip, and is held comfortably in one hand. The plunger is fixed and the barrel is pulled back by a finger grip below, indented to accommodate the first two fingers of the right hand. The plunger and its fixed support are hollowed and the oil being compressed between the plunger and the backward drawn barrel head, is forced through the hollow frame of the gun mounting, and so into the attached cannula.

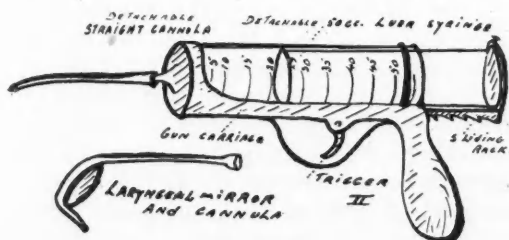


The head of the barrel unscrews for loading. The whole instrument can be boiled and sterilized. The plunger rod is marked in cubic centimetres. Its only disadvantage is the amount of oil left unexpressed in the plunger and hollow frame after the barrel is fully pulled home. This amounts to about 5 c.c. It was felt,

* From the Pulmonary Clinic, Royal Victoria Hospital, Montreal.

in view of the exorbitant price of lipiodol, that this waste must be avoided.

The second gun made has no waste of oil, except that left in the cannula itself, amounting to about 0.5 c.c. The gun-carriage is an aluminum composition casting. The 50 c.c. Luer glass syringe is easily and quickly detachable. This large size was selected for its ability to hold in one loading two containers of lipiodol (40 c.c.), thus eliminating refills during the operation. The gun-carriage has a forward head and a pistol grip behind. The frame contains a sliding rack. The trigger of the gun is in the usual position. The syringe head and tip fit into the frame head snugly. Strain is taken off the glass tip by the enclosing metal tip of the head piece. The cannula fits over this metal tip. The trigger pulls the rack forward and with it the plunger.



Each pull of the trigger expresses exactly 5 c.c. of oil. It may be injected quickly or slowly, as desired. It flows easily. Any size cannula or needle may be used on the metal tip.

Two cannulae are used, a straight and a curved one. The first is for the simple Pritchard method (6); the second is for methods 4 and 5. To get rid of the bimanual technique of a laryngeal mirror and cannula the mirror has been placed in the curve of the cannula. A short piece of soft rubber tubing, one or two inches long, is then attached to its tip. It can then be placed with precision either into the vestibule of the larynx or between the vocal cords. A small electric light bulb attached to the frame head and supplied by a pocket battery completes the instrument, and provides sufficient light even though a head mirror is not used.

The Pritchard method (6) is one that any doctor possessing an x-ray or a fluoroscope machine can do easily in his own office. There

is no special skill necessary. His failures will amount to about 10 per cent. With preliminary medication of 1/6 grain morphia and 1/150 grain atropine one hour before this will be reduced to 5 per cent. For these, methods 5 or 1 can be tried. Reserve method 2 for children.

These two instruments were made for me by Mr. Haliburton, of Haliburton and White, 314 Notre Dame Street West, Montreal, to whom I owe many thanks for his ingenuity and skill.

A SPEED MACHINE FOR WINTER USE

Transportation in winter is the nightmare of country practitioners. A call to a maternity patient thirty miles away, when the thermometer is forty degrees below zero, is a frequent occurrence. Snow-filled roads render a car impractical; a horse and cutter was the only other alternative until Dr. Jas. E. McGillivray, of Weyburn, Saskatchewan, invented his speed machine.

He made it from a Harley-Davidson motorcycle 74, with Ford attachments. It is the width of a sleigh, is capable of fifty miles an



Speed machine invented, owned and operated by Dr. Jas. E. McGillivray, Weyburn, Saskatchewan.

hour, and goes thirty to thirty-five miles on a gallon of gasolene. While the machine is open and it looks as if the occupant would be cold, such is not the case, as the hot engine is so near. The roar of its approach guarantees a clear road; even the herds of horses which wander over the prairie scatter when they hear it coming.

LILLIAN A. CHASE

CHANGE IN REACTION OF SKIN TO HISTAMINE.—The reaction of the skin to a minute amount of histamine pricked into it has been used by Isaac Starr, as a test for circulatory deficiency in the feet. In normal cases the reaction appeared within two and a half minutes and was complete within five minutes. In cases showing clinical evidence of impairment of the circulation to the feet, the reaction to histamine was delayed, reduced or incomplete. Some diabetic patients with negative phys-

ical examinations of the feet showed delayed reactions to histamine. Calorimetric determinations of the "blood flow" showed abnormally low figures in these cases. Reactions similar to those seen in pathologic conditions were produced in normal persons by partly obstructing the circulation mechanically or by reducing the blood flow by exposure to cold. The test does not require any special apparatus or technique, and it can be completed within fifteen minutes.—*J. Am. M. Ass.*, 91: June 1928.

Editorial

A BROADER OUTLOOK ON THE TUMOUR AND CANCER PROBLEM

UNTIL quite recently the attention of investigators of the cancer and tumour problem has centred in the "autonomy" of the cancer or tumour cell. This strange "autonomy" has been considered the basis for the development and growth of tumours. Other tissue components, notably blood circulation and nerves, were either almost entirely neglected, or at least subordinated to a position of minor or secondary importance as regards origin, growth, and extensions of the tumour. Some years ago Professor Ricker, of Magdeburg, formulated a theory of cancer (and other tumour growth) in which he put the blood-circulation prominently in the centre of events, and in which he advanced the opinion that all tumours arise directly on the basis of a long continued local hyperæmia (neuro-vascular stimulation), and that tumour growth is the result of disturbed (pathological) nutritive relations between the blood supply of the tissue and its cells (the so-called peristatic state). In his opinion, local hyperæmia first initiates, through increased nutrition, cell hyperplasia and paratypical hyperplasia (precancerous or carcinoid stages). The latter becomes "atypical," more primitive, through a metabolic decline or simplification which is morphologically revealed by the structural changes characteristic of these cells. (This factor has lately received some support by Warburg's investigations of the chemistry of cancer cells). It constitutes, according to Ricker, the first step in the tumour process. The second step arises from the altered, more primitive metabolism of these cells, which, through certain secretory products, stimulates adjoining blood vessels and stroma to new formation. This effect becomes notable in advance of the tumour, even at some distance from the tumour growth. It permits the extension of these cells to new territory, and also accounts for the positive transplantation results. The regression and

waste of normal parenchyma in the tumour field is not, Professor Ricker holds, evidence of an active tumour invasion or of particular destructive properties of tumour cells, but rather the necessary result of the altered, disturbed relations of the "pathic" new circulatory arrangement and blood supply to the normal tissues, while this blood supply is co-ordinated and fitted to the tumour parenchyma. It would go beyond the intentions of this statement to give here the details of Professor Ricker's¹ interesting reasonings, but his theory has recently received a certain amount of suggestive experimental and morphological support, especially from the side of tar cancers. A number of investigators have discovered that the local application of tar is followed by coextensive hyperæmia, and Itchikawa and Baum, moreover, found that animals which respond to tarring with tumour-formation, (rabbit, mouse), react primarily with local hyperæmia, while animals which do not, or rarely, respond with tumour-growth, (guinea pig, rat), do not show hyperæmia. Evidently vascular and epithelial reaction run parallel. Of very great interest in this connection are observations made by Leiv Kreyberg.² His conclusions are here quoted: "Tarring of the skin of white mice produces a marked local hyperæmia, with increased transudation. The hyperæmic condition lasts as long as the tarring is continued. The hyperæmic tissues are furnished with supernormal amounts of nourishing substances and oxygen. During this period the same tissues, especially the epithelium, become hypertrophic. The hypertrophic epithelium later forms warts and papillomas. The formation of these "benign" tumours is intimately connected with the occurrence of excessively dilated capillaries. At this point, small, multiple, capillary thrombi are found, especially in and around the developing tumours. In a tissue which had been previously furnished with

an increased amount of nourishing substances, and which had shown an increased rate of growth, the blood-vessels become more or less obstructed, and accordingly the supply of food and especially of oxygen correspondingly decreased. In the following period the manifest malignant tumours develop." Further investigations showed that this hyperæmia persists a variable time after tarring has ceased and is apparently followed by anatomical and functional changes in the capillary vessels.

One other point is raised in this connection and touched upon by Leiv Kreyberg—the possible relationships of nervous influences in the development of tumours, which have been reported by Cramer and others. These, he thinks, may act though their vaso-motor effects. Thus, Cramer³ found "that the presence of the peripheral nervous mechanism is an essential factor in the process of chronic irritation which leads to the development of cancer," and also that the loss of nervous control in an area of skin (by previous dislocation and reattachment) does not predispose to cancer. Clinical observations of a similar kind were made years ago by Sir Lenthal Cheatele. While it has generally been taken for granted that tumours are nerveless, Ricker has pointed out that the failure of histological methods to demonstrate nerves in tumours is very likely the fault of our technical deficiencies, rather than an indication of absence of nerves: just as is the case in any young tissue rich in cells and also in granulation tissue, in which present histological methods generally fail to demonstrate nerves. Functional tests have demonstrated in the latter, at least, the presence of vaso-

motor nerves. Since then evidence has been offered by several investigators that tumours, experimental and spontaneous, in animals and man, actually possess a nerve supply and further refinement of histological technical methods may be expected to confirm these findings. This is, at least, the writer's personal experience as regards nerves in tumours.

It remains to be seen how far these observations may be generalized and applied to human cancer, but these findings point to a somewhat broader and more exact understanding of the tumour and cancer problem, than is possible under the older, restricted views of a more or less mystic cell "autonomy" and cell "aggression" to which almost everything else has in the past been subordinated. It may be that we have in the tumour problem, as elsewhere, focussed our attention too strongly on the autocracy of cells without sufficient regard to those environmental influences, (blood circulation and nerves), through and by which cells are physiologically and pathologically set in motion. If the results here sketched are further substantiated it would be another instructive example to illustrate that in dealing with tissues one may not, even for the sake of study, safely separate one tissue component from the others, but that tissues form an insoluble, causally connected, system which moves as a whole, even in such strange anomaly as tumour growth.

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HORST OERTEL.

SPECIFIC TREATMENT IN SYPHILIS

IN the *Lancet* for January,* 1929, appears a report of an investigation made by Dr. Bruusgaard, Professor of Dermatology at the University of Christiania (Oslo), Norway.

Dr. Caesar Boeck, who was Professor of Dermatology in the University, from 1891 to 1910, used to teach that in the great majority of syphilitics the then so-called "specifics," potassium iodide and mercury,

were not only useless, but actually harmful, in that while utterly failing to eradicate the disease they obstructed the body's natural defenses, thus "causing the disease to run an atypical course and inflict serious injuries on certain internal organs, particularly the central nervous system." Boeck only used mercury and potassium iodide in cases in which the body unaided by drugs failed to react satisfactorily to the disease. Dr. Bruusgaard succeeded Dr. Boeck, and

* January 26, 1929, p. 195.

between 1925 and 1927 examined the subsequent history of the two thousand one hundred and eighty-one patients who, suffering from primary and secondary syphilis, had attended Dr. Boeck's clinic between 1891 and 1910. Three hundred and nine were alive and one hundred and sixty-seven were dead of known causes. The three hundred and nine were carefully examined and the histories of those dead were also classified. Dr. Bruusgaard states that only 0.6 per cent of these patients developed general paresis, as opposed to the generally accepted figure of 4 per cent; only sixty-seven suffered from diseases of the blood vessels; one hundred and thirty-one were clinically symptom-free and gave a negative Wassermann test; seventy more were symptom-free, but gave a positive Wassermann. Dr. Bruusgaard remarks "Evidently in a considerable number of cases the body is by itself able, not only to arrest the progress of syphilis but even to eradicate the disease."

This recognition, that in syphilis, like any other disease, we must recognize the natural resistive forces of the body as a very material aid to any specific therapy we may employ, is not new. It formed the basis from which Wagner-Jauregg, in 1888, began the researches in non-specific therapy which culminated in the introduction of malaria inoculation in 1917. The idea that specific methods of treatment, or, what is quite a different thing, insufficient treatment by specific means are actually predisposing causes to general paresis is not nearly so generally held, neither is the evidence for it so clear. Dr. Bruusgaard's report, tending to substantiate this is the first we have seen where a large series of cases has been studied over such a long period of time. We know of only one other authoritative piece of work which tends to substantiate Boeck's belief. In a Special Report, series No. 107, issued by the Medical Research Council of Great Britain, is found the conclusion that mercury given during a period when the blood-Wassermann test is negative tends to cause the blood to become positive much quicker than if none had been given. There is another fact which must also be taken into consideration whenever we are tempted to believe that there has been a great increase in general paralysis. We must remember

that it is more apparent than real. Our aids to diagnosis are now much better than they were twenty years ago, and there is no doubt that many cases of neurological involvement which to-day are diagnosed would have been missed two or even one decade ago.

The only logical way to approach the problem would be to take the entire syphilitic series for the last twenty years of several venereal clinics, trace as many patients as possible, and in that way arrive at the percentage of general paralytics in treated cases. It would, however, be very hard to find to-day on this continent as large a series of untreated cases for comparison as Bruusgaard's.

At the Verdun Protestant Hospital, where we have come in contact during the last five years with some two hundred cases showing syphilitic involvement of the nervous system, we have noticed for some time that a rather impressive percentage of our worst cases were patients who had received considerable treatment with mercury, combined usually with salvarsan. It is, however, difficult and in many cases impossible to obtain accurate figures regarding this, as the mental condition of the patients by the time we see them is such that they can give no accurate information, and if they had been taking treatment the families were usually in ignorance of it. It may be that, if an accurate history could have been obtained in every case, it might have been found that among those who reacted very favourably to non-specific treatment there was a much larger proportion of patients who had previously received intensive specific treatment. In our post-malarial treatment we have not used mercury or salvarsan during the last two years, and can make the confident assertion that we have never missed it. We shall in all probability continue to omit it, for the simple reason that we feel we need stronger justification for using so potent a drug as is mercury than the argument that it does no harm.

On the other hand, we have read to-day a recent report by the United States Veterans' Bureau, in which it is stated that they obtained the best results by combining malaria with intensive specific treatment, which, presumably includes mercury and

salvarsan. Their published results are, however, no better than our own, where we excluded both mercury and salvarsan. The only specific treatment which we give following malarial inoculation is bismuth and tryparsamide, but, as has been pointed out in an article elsewhere in this issue, we do not consider the effect which tryparsamide has in ameliorating late syphilitic nervous symptoms to be entirely due to its specific properties. In both our malarial series and our tryparsamide series the relief of symp-

toms which took place was subsequent to the physical betterment of the patients. They first began to gain in strength, to increase in weight, and to show a more normal appetite. In watching their recovery one was strongly reminded of the way in which the body recovers from any wasting disease. That is to say, the whole picture during recovery seems to be due to the marshalling of the resistive forces of the body rather than to a direct spirochaeticidal action.

E. C. MENZIES

THE CAUSATION OF MYOPIA

MANY have been the theories put forward to account for shortsightedness in children, a condition in which for some reason the sclerotic is unduly stretched during the early years of life, so that accurate focussing demands the use of concave lenses. Sir Arthur Keith,* a few years ago, described myopia as a disorder of growth, and attributed it to a faulty reaction of the fibroblasts of the sclerotic to the strain they are subjected to arising from intraocular pressure during the period of growth. As the *Lancet*, (p. 1347, Dec. 29, 1928,) states in an editorial, from which we abstract, this no doubt is a true way of stating a fact, and heredity, which in certain families is very prominent, has undoubtedly much to do with the defect in the process of growth. But though this hereditary defect may exist as a primary cause in all myopes and in some way be of such importance as to put other causes into the shade, it by no means follows that other causes should be ignored. The constant wearing of accurately prescribed glasses undoubtedly appears to have a favourable influence in retarding the process by lessening strain. On the other hand, prolonged convergence of the eyes in near work has been stated to involve an increase of pressure by the external muscles of the eye and especially by the superior oblique. This increase of pressure, however, has never been actually proven.

Venous engorgement is now regarded as a more probable cause, and such engorgement may result from prolonged stooping of the head and neck, such as work at short range

entails. Prof. George Levinson, of Berlin, laid stress on this factor twenty years ago, and since then has reinforced his opinion by keeping young apes in a horizontal position. He claims that by doing so he not only renders them myopic but produces changes in the fundi similar to those found in human myopes. These findings of Prof. Levinson have been confirmed recently in a paper by Essed and Soewarno* of Java. These investigators repeated the experiment of Levinson on seven apes, five of whom became myopic, while the eyes of three controls remained unchanged. The eyes of those affected were excised and sent to Levinson, who confirmed by careful examination the findings of the Javanese investigators. The proportion of animals in whom myopia was artificially developed (70 per cent) contrasts with the 16 per cent in whom myopia is said to be normally present. In two of the animals a myopic crescent was also produced. The typical myopic crescent, while no proof of active myopia, is not a congenital defect, but is at present regarded as the result of a stretching of the eyeball during growth, and in consequence is frequently met with in myopes.

Prolonged stooping of the head and neck over work at short range is very common in school children, and teachers and parents should be directed to watch children and prevent them taking this very injurious position while working at their lessons.

A.D.B.

*KEITH, SIR A., *The Lancet*, 1: 32, 1925.

* W. F. R. Essed and M. Soewarno, *Schweizerische medizinische Wochenschrift*, Nov. 1928. See also *Klin. Monatsbl. f. Augenh.* 60: 56, 1928.

THE HARMFUL EFFECTS OF NOISE

SOME little time ago we called attention editorially to the subject of noise, pointing out that the annoyance from this cause was becoming so serious that public attention was being drawn to it, in the hope that efficient measures of control might be devised. With the advances in civilization, accompanied as they are by the increased use of mechanical devices, noises of multifarious kinds have come into being and are increasing rapidly. Some of these noises are certainly unnecessary; many of them are probably unavoidable. With the increasing congestion of the cities we may expect the annoyance to become still greater, unless something is done about it. The problem is a difficult one, no doubt, but it is serious and demands solution.

Before proceeding to adopt the elaborate measures that would be necessary to control noise, it would be proper to enquire whether noise is harmful to the bodily organism. Most medical men would say that it is. Noise is distracting, nerve-racking, and, beyond question, it interferes with rest and sleep. But have we definite proof of all this? During the past few years attempts have been made, chiefly in American universities, such as Michigan, Northwestern, and Colgate, to substitute precision for generalities, and to that end numerous observations have been made with the aid of suitable instruments. The work up to date has been usefully summarized by Professor Donald A. Laird,* the Director of the Psychological Laboratory of Colgate University.

In order to get accurate standards for comparison, Professor Laird made use of an audiometer devised by the Bell Telephone Company. This instrument measures noise intensities on a scale ranging from 0 to 100, 0 being a just audible intensity and 100 an intensity sufficient to make the ear drum tingle to a degree just short of actual pain. It was found that there are few places where people work that are below an intensity of 50 units. In a shopping section in Chicago the intensity ranged from 50 to 70 or more, according to the time of day. Busses, auto-

mobiles, and taxis contribute about 50 noise units; surface and elevated cars, 60 to 65 units; subway trains, 75 to 80 noise units; in certain factories the operatives are subjected to 85 noise units. It was found that when a window was raised the noise within a room was increased by 40 per cent.

The harm that noises do, according to Professor Laird, does not appear to lie in any injury to the mechanism of the ear or to the auditory nerve, but rather that noises are effective in rousing the "fear-reaction." Common experience will illustrate this. All are familiar with the shiver, almost painful, that occurs when a file or caster squeaks; with the involuntary jump when a pistol is fired; with the fatigue after a noisy railway journey; with the fear during a thunderstorm. The fear-reaction in the cat is manifested by its hair standing up on end, a phenomenon due to the contraction of the minute arrectores pilorum. A similar muscular tonus occurs in the human subject, and the pulse rate, blood pressure, and the respirations may also be affected in the course of the fear-reaction. At the University of Michigan a sleeper was being studied. It was found that during the night when a taxi passed his window a rise in blood-pressure ensued, even though the sleeper did not awaken. Dr. John J. B. Morgan discovered that when stenographers were working under the influence of noise they exerted more pressure on the keys of their instruments. Here bodily energy was dissipated by a general tenseness of the muscles of the body. This is the exact reverse of relaxation; it is fatiguing and uses energy unnecessarily. Professor Laird also found that, in experiments on typists, when the noise in the test-room was reduced by only 15 per cent there was a 5 per cent increase in the output, and about 25 per cent less bodily energy was employed in doing the typing. It further developed that there is a critical point in the scale of noise intensities above which the fear-reaction and possibly other effects are made manifest. The present indications are that most city, office, and factory noises are above this critical point.

*LAIRD, D. A., *The Scientific American*, 84: 508, Dec., 1928.

The noise problem can be attacked in two directions; by legislative enactment forbidding unnecessary noises; by improving machinery so as to reduce its noise coefficient; by diverting heavy traffic from residential sections; by developing suitable roads; this is the attack on the source; or, by employing devices to reduce the noise within buildings to an intensity below the critical point. In the case of the modern reinforced concrete building this will be difficult; in the case of the private house, not so difficult.

Sound-absorbing material can be used in floors and walls; rugs, hangings, pictures, and furniture generally are found to prevent echoes and so deaden noise. Furthermore, experiment has shown that it is possible to construct ventilators to be attached to windows which will reflect and dissipate a large proportion of the street noises without interfering with the supply of fresh air. Good construction of buildings would do much to lessen the harmful effects of noise.

A.G.N.

ETHYLENE GAS AND MARKET GARDENING

ETHYLENE gas is being thought about and written about a great deal at the present time. It seems to be gaining in popularity as the anæsthetic of choice in certain classes of operations. But it is not generally known that it is also finding its place in the industrial world. It is being used to hasten the ripening of fruits and vegetables. Celery may be whitened and oranges and tomatoes may be prematurely coloured by subjecting them to the action of this gas. This has an important economic bearing, since it now becomes possible to lengthen the season for such commodities and, by producing a natural appearance, to ensure their ready saleability.

The question, however, at once suggests itself whether the artificial ripening of fruits and vegetables may not interfere with their content in vitamins and thus lessen their food-value. The answer to this question will depend on the outcome of experimental tests. Something has been done already in this direction, but the full answer is not yet.

The matter is so important that it has attracted the attention of the American Medical Association and has been referred to editorially in the Association's *Journal*.*

Working in the University of Maine, M. F. Babb† has endeavoured to elucidate the problem, so far, at least, as it applies to celery, in which case ethylene is used chiefly for blanching. He took young rats, paired as to weight, and belonging to the same litter, and fed them a diet devoid of Vitamin B. They developed the symptoms characteristic of Vitamin B deficiency. Then he fed them with known quantities, apart from the basal ration, of celery blanched with ethylene and that blanched naturally, keeping note of control animals in each case. His results showed that the artificial blanching of the celery did not impair its content of vitamin B.

A.G.N.

* *J. Am. M. Ass.* 89: 792, Sept. 3, 1927; *Ibid.* 89: 1875, Nov. 26, 1927.

† *Science* p. 231, Sept. 7, 1928.

SHOULD THE SIPPY REGIME FOR ULCER BE DISCARDED?

THE results of the medical treatment of gastric and duodenal ulceration are far from gratifying at the present time. Rest, hourly feeding, and alkalis alleviate symptoms in a majority of instances, but the percentage of permanent cures of even simple ulcers is not high. On this continent the Sippy and Lenhartz managements have been widely accepted, and one or other exists as the routine treatment of ulcer in many

hospital units. In England, the value of these régimes has been questioned, and recently investigations carried out at Guy's Hospital by Dr. Arthur Hurst,* and his associates have gone far towards proving their weaknesses experimentally, and pointing out the means by which ideal conditions

* Recent Advances in the Treatment of Gastric Diseases, A. F. Hurst, *Brit. M. J.* 2: Nov. 3, 1928.

favouring the healing of the ulcer may be obtained.

As regards diet, Dr. Hurst has shown that milk is by far the most ideal food in the presence of ulcer. Milk will neutralize approximately its own volume of hydrochloric acid in the concentration produced by the stomach. The hourly feeding of milk leads to complete achlorhydria for a considerable part of the day, but free hydrochloric acid may appear from time to time a quarter of an hour before the next feeding is due, or during the night. He agrees, therefore, with Sippy in this respect, but takes issue with him in the matter of additions to the fundamental milk régime. If a certain diet is suitable for a certain day, he adds, "it is absurd to assume that every ulcer, whatever its size and position, and whatever the general condition of the patient may be, will have improved in the day to just the degree which justifies the addition of an egg or a zwieback to the diet." He believes that the diet, once modified to suit the special requirements of the individual, should not be altered until all available evidence shows that the ulcer has healed. This may take from two to six weeks. On account of a probable predisposition towards ulcer the patient should follow a modified diet for the rest of his life.

Dr. Hurst's most interesting and important contribution to the treatment of ulcer lies in the experimental demonstration that the

alkaline powders, bicarbonate of soda and magnesium oxide, widely used as antacids, eventually produce the reverse effect from that desired, by virtue of having rendered the gastric contents alkaline. He cites Crohn, who found by fractional test meals methods that when the stomach contents are rendered alkaline, the production of more hydrochloric acid is stimulated. In fact, these alkalies are said to be the most powerful stimulants of this acid known, with the exception of histamine. On the other hand, such alkalies as sodium and potassium citrate, and tribasic calcium and magnesium phosphate rapidly produce neutrality of the gastric contents, without ever rendering it alkaline. At no time, therefore, is there a further stimulation of hydrochloric acid.

Granting the accuracy of these observations, it would seem that the Sippy and other similar powders are distinctly contraindicated in the treatment of any form of hyperacidity, for the exact dosage to just bring the gastric contents to neutrality can not be estimated. Their place should be taken by potassium citrate or other alkalies which bring about neutrality only. In addition the possibility of an alkalosis is obviated.

The observations of Dr. Hurst and his associates should be tested further, and our methods of treatment revised along the lines which the results of these experiments suggest.

E. S. MILLS.

THE DEPARTMENT OF HOSPITAL SERVICE

COMMENCING with this issue, the *Journal* is inaugurating a section in its columns which should prove of considerable interest to our readers. Under this caption, the Department of Hospital Service hopes to discuss many of those hospital problems which are of interest to the medical profession. Articles which appear in hospital journals not usually available to our members, expressing opinions and viewpoints with which the medical profession should be cognizant, will be freely quoted or abstracted.

During the past year many hospitals throughout Canada have been visited by the Secretary of this Department. This tour has embraced the great majority of the

larger hospitals and many of the smaller ones as well. Hospital problems have been discussed with superintendents, members of the medical staff, and members of the boards of trustees. This contact with the nursing and lay members of the hospital family has been most stimulating and the opinions expressed by them on various occasions have given rise to considerable food for thought. We hope from time to time to quote the viewpoint of our non-medical associates, for we feel that a greater exchange of the medical and the administrative opinions would be of advantage to all parties concerned, including the hospital and the patient.

A great deal is now being said and written

about hospital costs. Much that we read is undoubtedly true. There are other expressions of opinion which are immature, to say the least. But few writers are constructive in their criticism, and a still smaller number grasp the crux of the whole situation. That the public will insist in the very near future upon some re-arrangement of the burden of hospital expense cannot be denied. Rather than have some ill-considered semi-continental scheme thrust suddenly upon us, we should discuss this timely question

ourselves and suggest remedies which would meet the situation and would not prove a boomerang to the public whom we have devoted our lives to serve.

Discussion of hospital topics in these columns and suggestions for the work of our Department of Hospital Service are invited. Of necessity, space is limited and all correspondence cannot be published, but an effort will be made to provide for such comments as are of general interest to our readers.

G. HARVEY AGNEW

AN IMPROVED METHOD OF EXAMINING THE GALL-BLADDER

IT is only recently that we have been able to gain any accurate idea of the condition of the gall-bladder by clinical and laboratory examination, and our methods are still admittedly imperfect. We publish in this issue a paper by Drs. Ritchie and Rabinowitch in which these methods are reviewed and criticized. This in itself is of value to those who wish to know how much they can depend on tests of the gall-bladder function, but these investigators have gone further. They have selected two methods which it is generally admitted give the most complete information, namely the blood sugar time curve and the x-ray examination by Graham's technique, and have used them in combination. As they point out, these two methods serve to supplement one another to a certain extent; the blood sugar time curve may be affected by such factors as chronic nephritis, hyperthyroidism, eczema, etc., and the x-ray findings are by no means

always definite, especially in the early stages of disease.

By their combination, however, a degree of certainty in diagnosis is arrived at which appears to be highly encouraging, even though the series of cases examined by the method is not very large. Apparently it has not been tried before, and we expect further communications along these lines.

It is of interest also to note that this work really grew out of researches which at first might seem to have only a remote bearing. These were concerned with the association between diabetes and cholecystitis. Dr. Rabinowitch had shown that this association is significant and was investigating it as an avenue of approach to the problem of diabetes itself. It was in the process of collecting data regarding the condition of the gall-bladder that the idea came of improving on the methods of its examination.

H.E.M.

Editorial Comments

ROYAL COLLEGE OF SURGEONS OF ENGLAND

In the May, 1928, issue of the *Journal* attention was drawn to the announcement that negotiations had been completed between the Royal College of Surgeons and the Canadian Medical Association, whereby the Primary Examination for the Fellowship would be held in Canada. Our members may have noticed that in each succeeding issue a full page has been given to advertising this examination.

The date has now been definitely set. The written examinations will take place on August

6th and 7th; the *viva voce* examinations on August 9th and 10th.

Two members of the regular board of examiners, one in Anatomy and one in Physiology, will be sent from England, and this examination in Canada will be in every respect similar to those conducted in England. This will be the first time in the history of the College that the examination will have been conducted outside of the British Isles, truly a generous concession to Canada and to our Association.

The advantages accruing, especially to the younger members of the profession, as well as to

the undergraduates of our medical schools, are strikingly evident in the saving of time and money to cross and recross the ocean in order to present themselves for examination in London. All those interested, or with friends interested, are urged to become thoroughly acquainted with all the conditions necessary for qualification and to apply for further details to the Association offices in Toronto.

Applications and certificates must be filed not later than April 13th next. A.T.B.

THE TREATMENT OF DUPUYTREN'S CONTRACTURE

We publish in this issue an account by Dr. A. Clifford Abbott of a new method of treating Dupuytren's contracture. The history of this obscure and crippling disease, as is pointed out by Dr. Abbott, shows only too plainly how unsuccessful have been the efforts to deal with it. His own contribution to the problem is in the nature of a preliminary note, since he has applied his method of fascial grafting in one case only, but his idea is original, and the results, as far as they can be judged, are encouraging. We look forward to receiving more extensive reports on this new technique. H.E.M.

A WARNING ABOUT CATGUT

The Editor has received communication, through the General Secretary, from the Ontario Provincial Police that a recent attempt to peddle cases of sterile catgut suture material to members of the profession has been stopped and the goods confiscated. Investigation revealed that this catgut was part of the output of a firm whose product had been condemned by the Ontario Government some four or five years ago. Presumably the packages recently peddled had been salvaged from refuse.

Do not purchase sutures or similar supplies from any individual not known to you as representing a reputable drug or supply company.

A.T.B.

RED CROSS OUTPOST HOSPITALS IN SASKATCHEWAN

Dr. Lillian A. Chase, of Regina, calls our attention to the excellent work done by the Red Cross Hospitals in Saskatchewan under conditions of great stress and difficulty.

The director of these hospitals is Miss Isabel Stewart, a graduate of the Toronto General Hospital, who served overseas with the University of Toronto Unit; then a year with military hospitals, coming to the west nine years ago. There were no Outpost Hospitals when she came; now there are thirteen, employing twenty-two graduate nurses. These nurses are a great help

in the community life and are greatly beloved by the settlers. Dr. Chase writes:

"Last summer I visited two outposts and was amazed at the good cheer of the settlers in spite of frozen crops. At Carragana there was a poster in the store 'Forget your frozen oats and come to the dance on Saturday night.' Such poverty and such pluck I never saw before. They are 20 miles from a telephone and 65 miles from a doctor. There are no motor cars. Maternity patients are taken home in high jolting wagons over five, ten or fifteen miles of rough roads."

In 1928, in the thirteen Red Cross Outpost Hospitals operating in Saskatchewan 1,422 patients were treated. Of these 396 were maternity cases, resulting in 402 babies; 19 of these were stillborn. *There were no maternal deaths.* There were 337 surgical cases, 129 accident cases, and 560 medical cases. In these 1,026 non-maternity cases there were 38 deaths.

These hospitals are situated in the outlying and sparsely settled districts. Carragana is between Prince Albert and Hudson Bay Junction; the nearest doctor is at Tisdale 65 miles away. Meadow Lake is 65 miles north of North Battleford. Wood Mountain is 35 miles from a doctor. The other ten outposts are near doctors. In the communities where there is no doctor the nurse delivers the multiparæ but advises the primiparæ "to go outside," where medical help is available.

At a time when so much is being said and done with a view to lowering the maternal mortality in childbirth, such practical proof of advance in this direction, particularly under the circumstances, is of happy augury for Canada.

All concerned in bringing about this excellent result deserve a most hearty tribute of praise. A.G.N.

PROVINCIAL AND LOCAL BULLETINS

The January issue of the *Bulletin of the Manitoba Medical Association* has several interesting features. Very wisely, the Editor of the *Bulletin*, in view of the approaching visit of the British Medical Association, presents his readers with an excellent story of the early foundation and of the aims and the achievements of this society. It is certainly very desirable that every member of our Canadian Association should be acquainted with the work carried on by our visiting society with which we are so happily affiliated.

The British Medical Association has now a membership of nearly 35,000, and has branches in every country over which the Union Jack flies. It had its beginning in 1832 at a meeting called by Sir Charles Hastings, in the Board room of the Worcester Infirmary, at which fifty members of the profession in the neighbouring

counties assembled, and at which Dr. Hastings, as Chairman, urged the desirability of the formation of a society with the avowed objects of promoting mutual knowledge by the reading of papers, of maintaining professional honour, and of increasing by intercourse mutual good will.

For its title the name of the Provincial Medical and Surgical Association was chosen. In 1840 a journal bearing its name made its first appearance under the editorship of two of the members of the Association.

Interest in this society spread rapidly, and in 1856 branches had been so widely established that its name was changed to that of the British Medical Association, and the journal which had lately become the property of the Association, assumed for the first time the name of the *British Medical Journal*.

In addition to a very good account of the achievements of the Association since that date, the *Manitoba Bulletin* contains a good description of the magnificent building which now forms its headquarters in London. There is also a brief statement of the Constitution and administrative by-laws of the Association including a copy of the privileges of its members—privileges which all members of our Canadian Association are entitled to use freely.

In addition to its own account of the foundation of the Association, a more lengthy sketch of the founding and achievements of the Association and the life of Sir Charles Hastings, as its founder, is copied from the Jubilee Issue of the *Journal* of June 10, 1882. The life of Sir Charles Hastings is particularly interesting. Not only does he appear to have been an able physician and surgeon, but he was also greatly interested in all branches of natural science. He was early elected as a Fellow of the Geological Society, and appears to have been a friend of both Murchison and Sedgewick. He was also one of the original members of the British Association for the Advancement of Science, and wrote several books on geology, and on bird life.

In addition to these papers on the development and achievement of the British Medical Association, the *Bulletin* publishes a statement of the reports presented at a recent meeting by the Medical Research Committee of the University of Manitoba on the poliomyelitis epidemic of 1928, many of which we hope to publish shortly in our own *Journal*.

The profession in Canada as a whole recognizes the honour conferred by the parent society in accepting the invitation of the Winnipeg profession and in undertaking the long, and, we hope, not too unpleasant journey overseas, in order to hold its annual meeting in Winnipeg, one of the newest cities in the new world. We can assure all of our British confrères who can afford the time to attend this meeting that they

will find much to interest and much to enjoy, and that the Canadian profession from Halifax and Montreal to the younger cities of the Prairie Provinces and of the Pacific coast appreciates the honour and will endeavour in every means to render the trip a memorable one. A.D.B.

The Nova Scotia Medical Bulletin for February is a special issue devoted largely to commemoration of the 60th anniversary of the founding of the Dalhousie Medical School, which coincided with the 75th annual meeting of the Medical Society of Nova Scotia, referred to in our December issue. This *Bulletin* contains much interesting and valuable historical material in connection with the teaching of medicine in Eastern Canada. There are records of the men who have contributed to the growth of the Dalhousie Medical School, descriptions of the School at the present, and accounts of the part taken by Dalhousie and its graduates in the Great War.

We note also in the December number of the *Bulletin of Vancouver Medical Association* an interesting account of an obscure condition amongst cattle in certain parts of British Columbia characterized by hæmaturia. So far it is thought that this disease, which has proved fatal in all instances, is due to some deficiency in the food derived from this particular region, but more work is needed to clear up the question. H.E.M.

THE INTERNATIONAL EDUCATIONAL SOCIETY

An innovation of great interest and importance is the establishment in England of the International Educational Society, under the presidency of the Right Honourable H. A. L. Fisher, F.R.S., Warden of New College, Oxford. The object of this society is to give an international circulation to lectures given by teachers of eminence in all nations. Such lectures are at the present time being circulated through the medium of gramophone records. The lectures range from primary subjects to those that are highly specialized. The subjects that have already been dealt with are grouped under: Art and Music; Classics; Education; History and Geography; Literature; Science; together with others of a general nature. The lectures include many of the foremost authorities in the land. Without intending to make any invidious distinctions, a few names, taken at random, will suffice to show the quality of the mental pabulum so far provided: Dr. Percy Buck, Professor Gilbert Murray, Dr. P. B. Ballard, Professor J. L. Myres, F.R.S.; Professor G. Trevelyan; Rt. Hon. L. S. Amery; Lt.-Gen. Baden-Powell; Sir Michael Sadler; Sir Johnston Forbes-Robertson; Sir Henry Newbolt; Dr. D. Fraser-Harris; Professor Julian Huxley; and Sir Oliver Lodge.

The Society hopes, further, to make arrangements whereby the whole lecture-courses given in any particular university may be made available for those who desire them. Some time in the future it is hoped to utilize moving pictures and any other mechanical devices that can be adapted to educational purposes.

The plan might very easily be extended to include lectures on medical subjects, and clinical talks, by outstanding men in the profession.

The advantages of such a scheme can hardly be overestimated. It brings not only the actual voice but the very personalities of great authorities within the ken of all. It affords educational advantages not only to schools, colleges, and study-circles but to persons in remote districts of the world who are perforce out of touch with the great centres of thought and progress. It will help to lessen the danger to civilization from the uneducated and the semi-educated.

The Society is in no sense a commercial undertaking. Any profits which may accrue will be devoted to the foundation of Scholarships and for the benefit of education generally. The records are priced in England at four shilling and sixpence. They are twelve inches in diameter and are double-sided.

We are informed that since the first lecture-records were issued last May sales abroad, and particularly in Canada have increased at a most satisfactory rate. Libraries have already been formed by several educational bodies, including the University of Alberta.

The idea is an excellent one, and there can be no doubt but that the Society will be of great benefit to the community. It could be made, also, a powerful factor in strengthening the ties of Empire.

The Secretary is E. J. King, Esq., M.C., 91 Petty France, Westminster, London, S.W.1.

A.G.N.

PROFESSOR FERNAND WIDAL

We greatly regret to have to record the death of Professor Fernand Vidal, of the University of Paris, from cerebral hæmorrhage. Born at Dellys in Algeria in 1862, he was educated in Paris, where he proved himself a brilliant student. He received the gold medal in the examination for the *internat*, and later was awarded the Osiris Prize, together with the late Professor Chantemesse. Early interested in

laboratory work, his powers of accurate research, combined with quite exceptional clinical ability, no doubt explain the high quality of his contributions to scientific medicine. His first appointment was to the Chair of Pathology in the University of Paris, and, in 1911, on the death of Professor Dieulafoy he was appointed Professor of Clinical Medicine.

His fame became world-wide in connection with his application of the agglutination-test to the diagnosis of typhoid fever, which is usually, in English and French speaking countries, at least, called by his name. This particular work was published in 1896. With Professor Chantemesse, he did much work in connection with anti-typhoid vaccination. Besides his studies in connection with the treatment of Bright's disease, which appeared in 1906, he was greatly interested in the study of functional tests of the liver, and in asthma, anaphylaxis, and the infectious diseases.

Professor Vidal was elected a member of the Académie de Médecine in 1906; and of the Académie des Sciences in 1919; Honorary Fellow of the Royal Society of Medicine in 1921; and Foreign Member of the Royal Swedish Academy of Medicine in 1922. He was a most capable organizer and was renowned for the ease and lucidity of his lectures.

A.G.N.

A CORRECTION

There appeared in the February issue of the *Journal* papers on "Subacute and Chronic Nephritis" by Drs. Duncan Graham, W. R. Campbell and H. S. Hutchison.

In each of the papers the term "albumen" was printed instead of "albumin."

In all of the original manuscripts the authors had employed the correct word; the error was made in the proof-reading.

To some it may appear to be a small affair to call for Editorial Comment but the Editorial Board desires to emphasize that its constant aim is for correct English, correct construction and correct use of scientific terms.

To ensure uniformity, which adds so much to the literary merit of a *Journal*, the Oxford spelling and construction have been adopted as *standard* and manuscripts are altered, not because they are incorrect as submitted but for the one purpose as stated.

In this instance we humbly acknowledge the fault.

A.T.B.

LOCAL ANÆSTHESIA IN CONNECTION WITH ARTIFICIAL ABORTION.—F. Warchawsky, of the Department of Obstetrics and Gynecology of the Institute of Medicine at Odessa, recommends the following procedure. With a needle 10 cm. long by 2 mm. thick inject 40 c.c. of a

1 per cent solution of novocain with adrenalin at the top and around the neck of the uterus. After waiting ten minutes the operation can be commenced. This method, in his hands, has given good results, as the patients suffer very little.—*Odessa Med. J.* 3: 420, 1923.

Special Articles

ON THE MAINTENANCE DOSE OF DIGITALIS

BY A. D. BLACKADER, M.D., LL.D.,
Montreal

Since the introduction of digitalis into therapy by Withering, in 1785, medical practitioners have regulated the administration of it by the effect produced on symptoms, and by the appearance of signs indicating either clinical improvement or the development of toxic effects. To avoid, therefore, exposing the patient to the danger of too large dosage, a knowledge of the amount of digitalis that disappears from the body each day, and of the dosage necessary to maintain the action of the drug at an even level in the system, is very essential. Its rate of elimination was studied clinically by Pardee¹ in 1919. Tincture of digitalis was given until toxic symptoms developed. The drug was then omitted for a certain number of days, after which the tincture was again administered, until the same toxic symptoms reappeared. The amount given in the second course divided by the number of days between the appearance and re-appearance of the toxic symptoms provided means for estimating the daily average amount that had disappeared from the body in the interval. In Pardee's group of fourteen patients the daily rate of the disappearance varied from 10 to 40 minims. This knowledge must be regarded as too indefinite for practical use. In 1915, Cohn, Fraser, and Jamieson² had shown that digitalis caused a definite and characteristic action on the T-wave, explainable only by the direct effect of the drug on the heart muscle. This action on the T-wave Dr. Bromer and Dr. Blumgart,³ of the Thorndyke Memorial Laboratory connected with the Harvard School of Medicine in Boston, considered might be used as an index of the amount of digitalization preferable in many respects to the use of indefinite toxic signs and symptoms. It was hoped that by the use of it a more precise study might be made of the amount required to secure an even systemic action of the drug on the heart muscle, or, in other words, of the average amount of digitalis which disappears per day from the body during the course of its regular administration. The electrocardiographic changes in the T-wave, in their opinion, reflect more correctly the beginning of a toxic action in the heart than do the clinical symptoms of nausea and vomiting.

A carefully prepared galenical preparation of the tincture from selected leaves was employed, as being the preparation which would conform

as closely as possible to general medical practice. This tincture was standardized biologically by the cat method of Hatcher and Brodie.⁴ Only patients who had not received any digitalis preparation for at least one month were studied. The estimation of the daily maintenance dose, according to the first change in the T-wave, was corroborated in every patient by giving additional amounts of the drug and making calculations based on other changes, such as further alteration in the T-wave and an increase in the auricular-ventricular conduction time. All electrocardiograms were taken according to the three standard Einthoven leads, and the tension of the string was adjusted so that a difference of potential of one millivolt caused a deflection of one centimetre in the film. In spite of some lack of uniformity in the character of the disease in those tested the results were essentially constant. The maintenance requirements were found to be practically the same under different cardiac conditions, and although the estimated therapeutic dosage ranged from 190 minims to 322 minims.

In the first four subjects, the first definite electrocardiographic evidence was observed within six hours or less after the drug had been swallowed. In several patients a dose of one minim per pound of body weight produced a definite effect upon the heart rate within two hours. Two separate complete studies were made on the same subject, eleven weeks at home intervening when no digitalis was taken. The daily maintenance dose on three measurements during the first study was 22.1, 23.3 and 24 minims. Four measurements made twelve weeks later showed the maintenance dose to be 22.9, 22.4, 22.5 and 25.2 minims. The average daily maintenance dose in the two series would thus appear to be identical and also to approach the average dosage as ascertained by Pardee's plan.

The following is a statement of the results of the investigation. In eight male patients twenty-two measurements of the daily maintenance dose ranged from 19.8 to 28.9 minims. The average daily maintenance dose was 23.5 minims. This daily maintenance dose was essentially the same for all subjects regardless of cardiac lesions or of the degree of circulatory compensation. The first definite alteration in the T-wave occurred almost simultaneously in the three Einthoven leads where an average of 54.6 per cent of the total therapeutic dose became effective in the body.

There was no relationship found to exist between the variation in weight of the subject and the daily maintenance dosage required. The

dosage tended to decrease slightly with age. In seven subjects with normal sinus rhythm lengthening of the P-R interval preceded, followed or coincided with the changes in the T-wave.

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ON THE USE AND ABUSE OF COUGH

By A. D. BLACKADER, M.D., LL.D.,

Montreal

At this season of the year no symptom is more frequently brought to the attention of the physician than that of cough, and in a recent issue the *Lancet*¹ devotes several pages to the Schorstein lecture on the mechanism of "Expectoration," and to an editorial² on the use and abuse of cough, in which attention is directed to the methods by which the secretions of the bronchial tree are brought up to the surface from the depths of the chest. Expectoration, in the lecture by Dr. Wall, is stated to be effected by raising the intrapulmonary air pressure by inspiration, and then suddenly allowing the air to escape and carry with it any peccant matter that may be lying in the air passages. It is an unfortunate oversight, however, that in the address no reference is made to the movements of the ciliated cells in the air passage, which effect the first act of expectoration. In the editorial the writer quotes Dr. Leonard Hill who made a careful investigation into the factors which govern the movement of these ciliated cells and showed clearly that by their action secretion and minute foreign particles can be transferred in a comparatively short time from the lower bronchioles to the rima glottidis. These cilia, Hill states, act best in a neutral medium; any undue acidity or alkalinity in the secretion interferes with their movement; also, apparently, when the passages are horizontal the rate of transit is much faster than when the pulmonary passages have a direction approaching the vertical. By their powerful rhythmical movements these ciliated cells both in the bronchi and trachea transport the secretion to its exit from the larynx, after which it may be either swallowed or expelled with a slight cough or "clearing of the throat." Ciliary movement is clearly the primary agent in the process of expectoration, and would appear to be of greater efficiency than the explosive expiratory act of coughing. If the ciliary function is properly

recognized, violent coughing to expel sputum would appear to be an unnecessary reflex act, demanded only when the movements of the cilia have been much impaired by inflammation or by trauma.

Furthermore, the cough reflex is frequently unassociated with the presence of pulmonary secretion, and may be induced especially if the mucous membrane is rendered irritable by conditions altogether extra-pulmonary, such as inflammatory conditions in the larynx, the pharynx, the naso-pharynx, the mediastinal glands, and even in the ear or in the wall of the stomach.

Experience with lipiodol fails to disclose the presence of any cough reflex in the smaller bronchi. It would appear that such reflex comes chiefly into play when any irritating secretion reaches the larger bronchi, the trachea, the larynx, and especially the pharyngeal wall. If the cilia are intact and their movement unimpaired the act of coughing would thus appear to be for the most part unnecessary. Patients taught to control their cough, and allow it to take place only at certain specified times, soon become aware that their sputum may be expectorated at regular periods with a gentle clearing of the throat. Explosive coughing is rarely necessary, and may do harm by introducing infection into the sound lung and its frequent recurrence must tend to distend the air cells.

The morning cough, so universal in patients with pulmonary complaints and frequently met with in inveterate smokers and alcoholics, is due to the collection of viscid mucus on the posterior wall of the pharynx. This secretion has been brought up overnight by ciliary action or has been excreted from a chronically inflamed pharyngeal mucous membrane. The cough which it induces can best be relieved by a warm alkaline drink which will render the mucus less viscid and will assist its expectoration.

Dr. Cecil Wall, in his Schorstein lecture, calls attention, however, to a few clinical conditions in which a recognition of the muscular action demanded in severe coughing may have some value. In recurrent bronchitis in a patient with abdominal obesity the reduction of his girth will in many ways assist in the descent of the ribs, and the movement of the diaphragm; in such cases a limitation of the amount taken at a meal may have some value. In the treatment of a patient suffering from hæmoptysis it is better to allow the patient to be in a semi-sitting position rather than lying flat, as he is generally kept. In the treatments of all kinds of cough associated with the necessity of muscular effort to effect expectoration it will be found advantageous to allow the patient to sit so as to fix the pelvis and bend the spine and neck forward. By this means expectoration will be more easy. It is not always sufficiently realized

that the descent of the diaphragm is an important factor in inducing expansion of the apex of the lung. Radiographers are emphatic on this point, and perhaps it is due to this that the abdominal breathing male is more frequently attacked by tuberculosis than the costal breathing female.

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THE MEDICAL USE OF RADIUM*

BY A. D. BLACKADER, M.D., LL.D.,

Montreal

In a recent report of the Medical Research Council the results of research work accomplished with the stock of radium loaned to various institutions in Great Britain is published, and is based upon the accounts of work done in 1927, as submitted by the several participating institutions. The general scope of the present report differs only slightly from that of previous years, but there are unmistakable signs that radium is being more widely and more confidently used in the various forms of malignant disease than formerly. A definite technique has been developed for the treatment of cancer in almost all regions of the body. The general tendency of radiologists to-day appears to be to use emanations of less intensity, while permitting a longer exposure time. The older practice, however, of relying on tubes containing 20 or 30 milligrammes of the element, and permitting a much shorter exposure, still prevails in many centres for the treatment of special cancers, notably those of the cervix uteri, while exposures for a week or more from tubes containing 1 or 2 milligrammes are employed in the treatment of cancer affecting the buccal cavity, vulva and larynx.

The Middlesex Hospital employs radium therapy complementarily to radical operation in mammary cancer. At the time of the operation, radium in separate tubes, containing from 10 to 20 mg. of the element, are inserted in the intercostal spaces, supraclavicular fossa, and the apex of the axilla, and are left in position for 24 hours. Should visible recurrences occur they are treated by a method which aims at encircling the growth with radium tubes. The report from this hospital contains an account of the treatment of nine cases of recurrence after operation, and in the majority of which the local growth disappeared under these measures. During the period under review sixty-three cases of breast cancer were treated by the second plan of sur-

face radium therapy, including six of primary breast cancer, twenty-one of supraclavicular recurrence, and thirty-four of nodular recurrence. This surface radium therapy was practically all carried out by means of gamma-ray applicators (applicators which had filters which absorbed all but the gamma rays), having a concentration of 7.5 to 10 mg. of radium element per square centimetre.

Each year the statistical data from the different centres regarding cancer of the uterus become more valuable. It is noteworthy that when treatment with radium is supplemented by x-rays, or by externally applied gamma-rays, better results are obtained than when radium is employed alone. Results may vary with the effective range of irradiation, though admittedly not with this factor alone. Recurrence *in situ* occurs only very rarely. The Medical Women's Federation* discuss late radium reaction symptoms appearing six to twelve months after irradiation. Pelvic and rectal pain, tenesmus, and blood and mucus from the rectum are characteristic of this condition. Such symptoms may pass after a week or two, or, if severe, may persist for several weeks. Although the clinical picture may simulate recurrence of cancer with rapid extension it is important to stress the undesirability of repeating the radiological treatment of these cases. Fortunately, in the majority, even when reaction is intense, the symptoms subside rapidly and the tissues regenerate.

Various methods used in the radium treatment of cancer of the tongue differ from each other in points of detail, but there is a consensus of opinion that these growths respond much better when comparatively small quantities of radium are used and allowed to act for periods of from five to eleven days than when larger quantities are used for periods of twenty-four hours or less.

A majority of the cases of intrinsic cancer of the larynx respond favourably to radium treatment, but when the cancer has transgressed the boundaries of the larynx proper, improvement is rare. Growths of the œsophagus do not appear to be benefited by radium treatment, even when temporary improvement occurs. Too often speedy relapse follows.

In cancer of the rectum a combined technique of operation and irradiation is generally used in the treatment of these cases. A preliminary colostomy is followed by exposure of the growth behind, with temporary closure of the anus and removal of the coccyx. The results of treatment are not considered in the report, but the indications are that operable cases are at present more likely to benefit from surgical treatment than from treatment by radium.

* Medical Research Council, Special Report Series No. 126. London, H.M. Stationery Office, p. 122, 1928, 1s.

* *The Lancet* 1: 152, Jan. 19, 1929.

The response of sarcoma to treatment of irradiation appears to vary with the biological nature of the growth. Of thirty-one cases thus treated, seventeen were apparently cured and eight relieved. The best results were obtained in the treatment of fibro-sarcoma.

CHRONIC ULCERATIVE COLITIS*

During the last few years a good deal of interest has been shown in the subject of chronic diseases of the colon, and several important contributions to the medical literature have appeared. J. A. Ryle¹ has given a good summary of the clinical aspects and relationships of the visceral neurosis known as spastic constipation or spastic colon, with its allied condition mucos-membranous colitis; diverticulosis of the colon has occupied the attention of meetings of many medical societies,² while chronic infections of the colon formed a subject of discussion at this year's meetings both of the British and American Medical Associations. The discussion at the former³ covered the broad ground of the flora of the faeces and the relation of the bacteria found to diseases of the bowel and of the body generally. Part of the discussion turned on the possible causes of chronic ulcerative colitis, and references were made to the claims of the enterococcus or faecal diplostreptococcus as a causative agent in this complaint; these claims were regarded as non-proven. At the meeting of the American Medical Association,⁴ however, strong support of these claims was brought forward by J. A. Bargen and others. In 189 cases of chronic ulcerative colitis observed at the Mayo Clinic, Bargen stated that he had isolated in pure culture a diplostreptococcus with definite morphological, cultural, and biological properties, which he regards as the etiological agent in the disease. The strains isolated were injected intravenously into 459 healthy rabbits, and in 208 rabbits reactions were observed varying from marked diarrhoea to extensive hæmorrhages and severe ulceration of the colon. Following up these observations, Bargen has attempted the specific treatment of cases of ulcerative colitis by vaccines, and more recently serum, prepared with the diplostreptococcus as antigen. He is able to report since 1924 a series of 250 cases of chronic ulcerative colitis, in which 70 per cent were entirely free from bowel symptoms from 16 to 52 months after the beginning of treatment. This good result in a large number of cases is suggestive, and if confirmed by other workers will be a distinct advance in the treatment of the disease; but, in the discussion following Bargen's paper, many bacteriologists were not in agree-

ment with his findings that the diplostreptococcus is so frequently associated with the disease, and many clinicians stated that they had not found specific vaccines and sera so helpful. The cultures were made by smears from the surface of rectal ulcers when observed with the proctoscope, and the organisms may be, therefore, only a predominant secondary infection. It is possible that differences in characters may account for discrepancies in the views of Bargen and others, and the difficulty may be resolved by further study. There were three times as many cases of chronic ulcerative colitis as in the years before 1923. Many of these must be early cases and more amenable to treatment, and it may be surmised, too, that increasing experience has developed an improvement in the non-specific therapy which is carried on side by side with vaccine and serum treatment. Careful attention to diet and building up of the strength of the patient is necessary, and bowel lavage most helpful. Surgical measures, such as appendicostomy and cæcostomy, appear to be of doubtful value. Max Einhorn has advocated treatment by flushing of the colon with the intestinal tube by the oral route, and reports three cases successfully treated.⁵

A. F. Hurst⁶ has used with excellent results over some years a polyvalent antidysenteric serum. Absence of positive findings of dysentery bacilli in these cases had led to the belief that the treatment was non-specific; but recently P. H. T. Thorlakson⁷ has reported the isolation of dysentery bacilli in four out of five cases (three of Flexner group and one of Shiga type) where scrapings of the ulcer wall were taken with a sharp cutting curette. Improvement followed the use of serum prepared from the bacilli isolated.

The just estimation of the results of any method of treatment is liable to be fallacious owing to the slow evolution and relapsing character of the disease; but now that the attention of the profession is being drawn to these cases, their early recognition should improve the prognosis. The successful management of this complaint calls for all the skill and resources and patience of the physician, and for whole-hearted co-operation and faith on the part of the patient.

A.D.B.

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Men and Books

OCCULT HEALING PRACTICES IN FRENCH CANADA*

BY ANTONIO CANTERO, M.D., C.M.

Ste. Anne de Beaupré, Que.

Scientific thought has always been the outcome of a long struggle between teleological interpretations and casual explanations. But to the man in the street, who is indifferent to this struggle and is accustomed to remarkable things that our forefathers never dreamed of, things made so commonplace by their daily use, science appears like the magic lamp which, on being rubbed, brings forth our modern inventions. But let science step on some of our pet superstitions and we voice our opinion that it has no business to interfere with things which we think are not mundane. We are wedded, though we may deny it, to our superstitions. And it is because in the field of medicine this struggle has raged since the beginning of time, and that only late in the 19th century fossilised ideas of old, the result of theological and metaphysical modes of thinking, caught in the maelstrom of new achievements, have disappeared, that medicine has reached at last the full maturity of a scientific truth.

For the uncultured mind medicine is purely a procedure employed for the cure of disease. It may be that the human mind is incurably romantic, for we find persons of superior intelligence believing that disease does not exist—that medical science is a myth. The mental attitude of those who dwell in an imaginative castle erected by superstitions and error makes us surmise what primitive medicine really was. The former were compelled, as the latter still are, through mental inertia, to regard medicine as a collection of measures, discovered by mere chance or summary experience, which combat disease or rather the morbid symptoms. This is because they do not know of the bonds uniting medicine with the sciences, and cannot conceive that rational therapeutics can only be developed after scientific data of disease have been acquired. To disengage therapeutics from other medical knowledge is what the early healers did and what the village bone-setters and faith-healers do to-day, so that there actually exist at the present time representatives of rudimentary, instinctive medicine as well as representatives of theological medicine. Thus, when we attempt to discover the continuers of the epochs when man believed in the perpetual intervention of a supernatural

will in human affairs, we become suddenly impressed by the fact that in modern society there are people who, like the ancients, place the discoveries of medicine in the heavens and hold that there exists a relationship between God and disease.

The modern treatment by religious practices, such as incantations and prayers, will be topics for subsequent articles.

French Canada is rich in these beliefs and bizarre therapeutic methods. About their folklore, coloured with superstitions, and oftentimes smelling of witchcraft, there have sprung up occult practices of healing, rich in theosophic and mystic notions, the vestigial remains of the revival of neoplatonic philosophy of the fourteenth and fifteenth centuries. Let us note that it was about this period that Canada, then Nouvelle France, received its first influx of French settlers, the greater number of whom originated in the provinces of Brittany and Normandy. It is easy to believe that with their modes of living, customs and religion, they brought to Nouvelle France some of the cults and vulgar healing practices, as well as superstitions, which were then in vogue. Later, the colony developed more friendly relations with the various Indian tribes, and the settlers were initiated into the mysteries of the Red Man's Medicine and superstitions. So that down to this day, in certain parts of the Province of Quebec, far away from the tourist's penetrations, but sometimes not so far from modern centres, along the country side, quaint healing customs are carried out, which are a combination of Indian medicine and that of their forebears.

The author had the opportunity of visiting various countrysides and has collected at random these "marvelous" therapeutic methods from the "habitants," has listened to their healing qualities proclaimed by all, which has made him oftentimes wonder why they could not be jammed into the already well stuffed and highly specialized curriculum of our first-class medical schools!

When we trace the origin, and examine more closely the rationale of these practices and superstitions, we become suddenly impressed with the idea that they are not so grotesque as we were at first inclined to believe. In running the gamut of the habitant's therapeutic armamentarium we may distinguish three definite trends of thought on which their instinctive and theological system of medicine has been built. (1) Grotesque superstitions, as regards the performances of certain acts, or the use of objects which have no relation to the ailment to be cured. (2) The belief in certain healing powers possessed by persons supernaturally endowed. (3) The trans-

*From a work in preparation, entitled "Medical Folklore of French Canada."

plantation of the disease to another living being or objects.

From the beginning of time, when prehistoric man, roaming in the forests, saw the wild beasts lick their wounds, saliva has always occupied an important place in the instinctive medicine of all races. It is instinct that brings a bruised finger to one's mouth and bathes it with saliva. And who has not, time and again, in the case of a small burn licked the part and found out the soothing effect of saliva. In various rural districts of the Province of Quebec this instinct has been made use of for the treatment of various conditions. Thus, for warts and acne saliva obtained before breakfast is applied in a circle with the tip of the little finger. Fasting saliva, obtained from a young person, mixed with bread crumbs and made into a paste, is made use of in the treatment of small tumours, phlegmons and burns. If this paste is made on a Friday before dawn, and applied by a seventh son of an uninterrupted series of male children, born of the same mother, it will act as a miraculous balm in all pains. The same curative properties are obtained with the saliva of a hunchback or dwarf. For the relief of earache, a common practice consists in moistening the finger with saliva and introducing it in the auditory canal. Persons suffering with severe colicky pains, cramps, intercostal or facial neuralgia can get relief by massaging the parts with saliva. In various eye conditions, as in cataracts, it is often made use of and an application accompanied by incantations or prayers acquires a mysterious power. Not much attention is paid to a certain attendant degree of toxicity or to the pathogenic micro-organisms which hibernate in the mouth and are found in saliva. It is interesting here to note that saliva, not only in Canada but in other countries also, is made use of as a household remedy. The value, no doubt comes from the fact that it is a warm fluid, alkaline in reaction, which, associated with massage, acts as a lubricant.

The writers of ancient Greece and Rome make references to diseases treated with saliva. Pliny is convinced that it will cure leprosy, lichen, ophthalmia and cancer; Lucan (*Pharsalia*, book ix) mentions an African tribe known as "Psyles," who made an art of treating snake bites with saliva; Suetonius (*Life of Vespasian*, 1) narrates the story of a blind man who had his sight restored by the application of fasting saliva. Maitre Guillaume Patel, in his book "*Traité de la Peste*" (1624), gives various recipes for the treatment of bubonic plague in which saliva is the main ingredient. Ambroise Paré, François Valleriale, famous for his Rabelaisian prescriptions, and Jean Fabre (1629), all speak highly of the curative values of saliva. Ernest Renan, in his book "*Souvenir d'Enfance*", relates that a country gentleman was known by him who could restore and give back strength and good health by the application of saliva.

In Brittany and Normandy the custom still

exists of treating contusions, sprains and bruises, by expectorating, and then massaging vigorously the affected part. Even to-day, if we believe Cabanès, there exists in Spain, a tribe of Saladores like the African tribe mentioned by Lucan, which finds a cure-all in saliva. A quaint belief amongst the Flemish peasants is that to remove birth-marks from a new-born babe the mother must during nine consecutive mornings following the birth of the child lick these birth-marks. The Tahitian women treat their eye conditions in a fashion similar to that practised by our French Canadian mothers. In certain parts of French Canada it is a practice during painful pregnancies to light a holy candle and then to massage the navel with a little saliva. Amongst the Mahometan women, during difficult pregnancies, a marabout or saintly man is called in who reads a few verses from the Koran, expectorates on the abdomen of the patient, and then retires.

There are cures effected by bile obtained from various animals. A half breed told me that bile obtained from the bear is a good sudorific and prescribed in severe fevers. In cases of difficult hearing, and in eye-conditions, pig's bile is thought to be very efficacious. The Biblical legend of Tobias' cure of his father's blindness by carrying out the Angel's prescription—"Et fel valet ad unguendos oculos." may have something to do with the belief in the therapeutic value of bile. Amongst the Romans the same belief existed. Pliny writes, "*Ad oculorum medicamenta utilius habetur.*"

More grotesque are certain other practices, such as that for the cure of eczema. One must visit an eczematous patient, ask one of the household for a fresh supply of milk or cream, remove a thimbleful and bury all for nine days, after which the patient is cured.

Erysipelas may be cured by taking a tin plate and washing it from above downwards and then applying it to the patient's head.

Our modern pædiatricians will be glad to find a sure cure for whooping-cough. A braid of hair from the sick child is placed in a fresh piece of meat which is given to a stray dog. In Normandy, the water supply which satiated a colt's thirst is given for this disease. Wood-lice placed in a bag and suspended over the patient's chest is another good remedy. These are all practices still carried out in certain parts of Montmorency County.

The practice of treating severe fevers by applying a large piece of fresh steak over the patient's abdomen, in the belief that the fever will disappear as soon as the piece of meat begins to rot does not differ much from the method used in Brittany for the treatment of malaria or typhoid fever for which beefsteak is applied for five hours to both arm-pits. Sliced onions in stockings is another sure cure common in Brittany and French Canada. But why should horse-chestnuts carried in the left pocket for seven days be a sure cure for rheumatism?

Again a particle from a tree struck by lightning which has been found in the early morning following a thunder storm is a more precious amulet than all our modern "salicylates." What explanation can we give that you need only roll over a stone, spit on the spot, and roll the stone back in place, or, otherwise, carry old extracted teeth in your pockets and you will be free from all toothaches? Why capture a caterpillar, and place it in a bottle for nine days, if your wisdom tooth is bothering you? Why place nutmeg under a tin plate, if a baby is teething and suffering with diarrhoea? Dr. Foucart reports that in certain parts of La Brie and Champagne it is a practice to go at dusk with a red silk ribbon and sit close to a hawthorn bush, then touch the painful cheek with the ribbon, and walk three times around the bush, reciting a special formula. This practice is also carried out by certain "habitants." There is no relationship between the treating of a nose-bleed and suspending a medal around the patient's neck, or the application of a piece of brown paper over the forehead. We cannot explain why a fine comb, placed over the stomach region, should cure a severe gastric pain as soon as the both ends of the comb curl up.

These methods, we think, act in proportion to the degree of faith of those that put them in practice. They are not dangerous and they satisfy the demands of the good peasants. The local medical man is minus a few dollars in his coffers, and the people are assured that these old practices are efficacious. But where these practices become dangerous is when, in the presence of definite scientific facts, these people persist in their old superstitions. There is no danger in treating an old chronic sore throat by applying a dirty sock around the neck. Heat from the wool is soothing, to say nothing of the odour. But when in the presence of a definite "croup" a good mother persists in treating her child with a string of garlic wound round its neck, or a poultice made of carrots and potatoes, or in performing some ridiculous act, when only antidiphtheritic serum would save the child; when in the presence of a severe hæmorrhage, where only a good tourniquet is efficacious, one must believe in the special healing qualities of some expert country hæmatologist, who pretends to be endowed with supernatural powers, pronounces some cabalistic formula, or performs such foolish acts as turning his coat inside out, thus pretending to stop the flow of blood; when, for example, in the presence of a definite fracture the village bone-setter is called in to treat the condition, his only qualification being that he is the seventh son of an uninterrupted series of male children; then we can realize the danger of these practices and grotesque empirical modes of healing.

This belief in the healing properties of a seventh son is an interesting one. "So-and-so" has the gift to heal (*don de guérir*). Some believe that

it is hereditary gift and given as the most valuable part of a birth right. "It is in the blood" (*c'est dans le sang*). This gift of healing (*guéris du segret*) is restricted to a chosen few, and those who cure by the secret employ a set of cabalistic words, formulæ, and signs which appear fantastical to the uninitiated. It is difficult to explain how this belief originated. In Brittany an old superstition is that a posthumous child, or a seventh son born on the 29th of February at midnight, carries a special sign, "a mark on the forehead," or "on the palm of the hands." These children can cure goitre by simple application of the hands.

In Normandy children born on Good Friday can cure twenty-two maladies. Dr. Kiriloff writes that the same belief exists in certain parts of Russia. This "quid divinum" of the seventh child may have some relation to the Biblical belief of the Hebrews which made seven a sacred number. Egyptian medicine makes use of the curative qualities of numerals, in which seven appears quite often. The writer is inclined to think that the belief in the gift enjoyed by the seventh son goes back to the time of St. Hubert (A.D. 742). The patron saint of Brabant was often invoked for the cure of rabies. About the tenth century numerous pilgrimages were made to St. Hubert's shrine. It was a common practice then to delegate someone from a village or countryside to this famous shrine, who would obtain the power to cure rabies in his territory. This was known as the "power of respite." Later on, this power became a hereditary right and so many claimed this faculty that an arbitrary understanding was made that the power should be transmitted only to a seventh son. Mr. Emile H. Van Huerch, President of "La Société Belge de Folklore" writes that there exist in France and in Belgium descendants from St. Hubert who still believe they possess the power to cure rabies.

We wish to say little of those men of bad omen who roam the countryside ("*jetteux de sort*"). They illustrate another belief amongst the habitants, that it is possible to get rid of a disease by transmitting it to someone else or to an animal. If you suddenly develop warts, or if any of your household becomes suddenly ill, if your horse develops cramps or glanders, you may be sure that some tramp passed by your way and has cast an ill-fated spell on you and your family. If you wish to free yourself from the disease which has struck you or your household you must make it a point to ask some specially gifted person of the neighbourhood, who can relieve you of this bad luck or hardship (*Delier du sort*), as the habitant calls it. What a pathetic thing to be called to visit an emaciated baby, suffering with vomiting and diarrhoea, and to find the poor mother all in tears gazing over a basin of water on which melted grease has floated, and, then in a pitiful tone she cries, "Doctor, you cannot cure my child, someone has

wished him bad luck (*lui à jeter un sort*)"! The child was left to die because no country magician could be found who had the power to remove the bad omen.

The transference of disease is also a common practice. Thus, if you are suffering with a severe cramp, a good way to be cured is to give it to a dog by feeding the animal hot dough. To cure gout or rheumatism, cohabit with a dog or cat, and in a few days your gout will disappear. Another sure treatment consists in making a hole in the trunk of a tree, touch the trunk with the affected part, and then fill the hole with sand. To get rid of warts, place as many pebbles in a bag as you have counted warts, and leave the bag on the wayside; the curious one who picks up the bag also gets your warts. If a patient is suffering with a severe fever he may be cured if he can come in contact with an apple tree. That tree will never bear fruit, but the patient is cured of his fever. This practice of transference of disease is also met with in a certain part of Bavaria and in Italy. Thus, in Sicily, during the night of the Ascension at midnight sharp, the goitrous patient bites into the bark of a peach tree; the tree soon dies and the patient is cured of the goitre. In certain parts of Limousin it is a practice, for the cure of ulcers that will not heal, to hide the old dressings amongst a hawthorn bush; those who touch these dressings will develop ulcers, while the patient becomes free from any further trouble. There is not a very charitable aspect to this system of medicine; still those who practise it believe they have obtained much benefit.

I do not wish to touch here upon religious beliefs, and devotion to various patron saints. We are all aware of the therapeutic value of prayers, and the consolations that our religious belief brings to some of us. But how far are we from the ancient and pagan customs of incantations and devotions when we find that all therapeutic knowledge is based on such myths and superstitions?

In this article, it is not the writer's intention to mar in any way the charm of French-Canadian folk-lore, nor to brand the "habitants" as believing only in these grotesque modes of healing. In making a study of their folklore he has found that this subject has never been touched, and only with the desire of carrying out research in Canadian medical history has he endeavoured to bring before the public eye these quaint healing customs and beliefs. He believes that here exists untouched wealth, which only awaits more skilful hands, so that the charm and beauty of a race so modern, and yet still linked in some ways to the dark days of mediæval France, may be the more appreciated. These empirical formulae and occult practices are oftentimes not so ridiculous as they appear, and in conclusion we may quote the famous lines:

*Multa renascentur quae jam cecidere
Cadentque quae nunc sunt in honore.*

NOTE ON A MEDICAL FAMILY

By W. H. HATTIE, M.D.

Halifax

A paper, by Miss S. W. A. Almon, on the career of the late Senator Almon, recently read before the Nova Scotia Historical Society, reminds us of a rather remarkable sequence of medical men in the Almon family. Dr. William James Almon, who had held a commission as assistant surgeon in the Royal Artillery, when a battalion of that regiment was stationed at New York during the revolutionary war, came to Halifax when the royalist troops evacuated New York in 1776. Since that time there has always been a Doctor Almon in active practice in Halifax. The second generation was represented professionally by Dr. William Bruce Almon, who was the father of Dr. William Johnston Almon, Senator. Senator Almon was born in 1816. At King's College he belonged to a class of which several became distinguished, including General Sir John Inglis and Sir Edward Cunard, the founder of the Cunard Line. He received his medical education at Edinburgh and Glasgow. He took an active interest in public matters, and was called to the Senate of Canada in 1879, but continued in medical practice until 1890. His son, Dr. Thomas R. Almon, was the fourth physician of the name in the direct line of descent. He died some years ago, but not before his nephew Dr. William Bruce Almon, the present City Medical Officer, had established himself professionally in Halifax.

FRANK HAMILTON MEWBURN*

By R. B. DEANE, M.D.

Calgary

It is with peculiar pleasure, that few of you can understand, that I rise to express my heartfelt congratulations to Dr. Mewburn upon his elevation to the premier position of surgery in this country, in accepting which he takes with him the unanimous goodwill of the profession he so well adorns; and the appointment stands to my mind as a compliment at once to our Province, or City, and, last, but not least, to this Medical Society. As you all have not known him as long as I, it is perhaps not out of place, on an occasion of this sort, an assembly as it were, to pay tribute unto Caesar, to say something of a personal and reminiscent nature.

To begin with, Frank Hamilton Mewburn was born at what is now Niagara Falls, Ontario, then Drummondville, Welland County. His Christian

*An Address on the occasion of Dr. Mewburn's departure for Edmonton, to assume the Chair of Surgery in the University of Alberta, delivered before the Calgary Medical Society, October, 31st, 1921. Dr. Mewburn died on January 29th, 1929.

names he derived from his godfather, Frank Hamilton, the distinguished surgeon whose work on fractures and dislocations remains a classic. Dr. Mewburn's father was a doctor, also his grandfather. The latter sat at the feet of John Hunter, and the beautifully written manuscript notes of those old lectures it is a delight to read, as through them all breathes the old Hunterian spirit, contained in the advice to Jenner in connection with vaccination experiments, viz., "Don't think, but try." As John Hunter died in 1793, there is thus a continuous Mewburn medical tradition of upwards of one hundred and twenty-eight years, and Hastings Mewburn is the fourth generation of the Doctors Mewburn.

After Dr. Mewburn completed his medical education at McGill University he filled a house appointment at the Montreal General Hospital, and on the expiry of his term of office came west to Winnipeg, in 1882, as Medical Superintendent of the Winnipeg General Hospital, a position he occupied for three years. Those were eventful years. Listerian principles were as yet in the adolescent stage—there were still some who doubted; others who ridiculed; but there was withal a staunch and ever increasing band of upholders of the faith, and amongst those who, in many lands, were baptized at the font of antiseptics by the carbolic spray was the Professor of Surgery of Alberta University.

You will understand how surgical science has advanced to-day as a direct result of the application of Lister's principles since 1882, when I say that I recall Dr. Mewburn's telling me that during his three years' service at the Winnipeg General Hospital, then an institution with about 120 beds, that he saw but one laparotomy; so it was about this time that antiseptic surgery gradually encircled the civilized world, and by 1885, the year that Dr. Mewburn moved to Lethbridge, was firmly established everywhere, and was being rapidly improved and simplified in its details. Lister himself continued to use the carbolic spray until 1887, and it is of interest to note that as late as 1876, although the principle was enunciated by Lister in 1861, in a paper on the treatment of compound fracture with abscess, a period of fifteen years, there were only two surgeons who followed the true Listerian technique, viz., Howse, of Guy's, and Marcus Beck, of University College Hospital. By the general acceptance of these principles a wide field was at once opened up to any man with surgical talent and sufficient youth to learn new things, and Dr. Mewburn was quick to seize the opportunity, with what happy result is common knowledge to you all.

Personally I fell under his spell in 1888—33 years ago. I met him in the role of the family doctor and I was told that he was a wizard with the knife. This naturally appealed to my youthful imagination, particularly as I had already decided on medicine as a career, and in fact knew most of my bones through the kind tuition of a dear old friend, Dr. Augustus Jukes,

Principal Medical Officer of the Northwest Mounted Police, and father-in-law of my old friend, Colonel Sanders. Dr. Jukes was the most widely read medical man that I have ever met, and, incidentally, was brother-in-law to William Arthur Johnson, parish priest of Weston, Osler's first instructor. Colonel Sanders, I remember with gratitude, was himself an active contributor to my osteological knowledge by kindly providing me with an excellent set of Indian bones, which did me good service for years, so that when I was invited to visit the Galt Hospital and see the cases as well as the then occasional operations, it was just the opportunity I wanted, and I was not long in absorbing some of my preceptor's professional enthusiasm, as well as on occasion his more forceful mode of expression.

I see some of these old cases to-day as plainly as I did then, and indeed, from the time of which I am speaking until the present, I owe Dr. Mewburn a deep debt of gratitude which I am pleased to acknowledge, as from him I have learned a great deal.

I will refer to two of the cases, as they form signposts in my own professional life—my first operation and my first consultation. The operation was performed in the unfinished attic of the old Galt Hospital. The patient was a man of unknown age, over ninety, with senile gangrene of the right hand, due to atheromatous arteries, the like of which I have never seen or felt since. The operation was an amputation through the upper arm at about its middle. The anæsthetic was given by the then Lady Superintendent, a lady now living at Edmonton. Dr. Mewburn was the surgeon and I was the assistant and scrub-up nurse, my principal duty being of course to hold the arm, and I say to the Professor to-night across all the intervening years, that I hope I did not get very much in his way. The other case was some years later when I had just taken my degree, and the entire medical horizon looked comparatively simple. I was asked to see a kidney stone case in consultation. It was a revival of the same old, ever new, question, "to be or not to be" as regards operation. At this period I did not know much practically about cutting for stone, any more in fact than that the old time-honoured rule should be always observed, "when cutting for stone always have a stone in your pocket," but I did have a most tremendous knowledge of drugs and of course had several for each and every ailment that flesh is heir to, and, as I look back from this distance at their various and wonderful supposed actions, it all seems more akin to some delirious Arabian Nights' entertainment than anything else I know of. Well, about this time a wonderful new German drug was introduced called urotropine—possibly some of you have heard of it—and it certainly had a great reputation for dissolving all kinds of rocks and stones, no matter how big or how hard, so I counselled great reserve in performing a hazardous operation and

advised urotropine. I recall the Professor's face now, as he looked at me out of the corner of his eye, with a half amused quizzical expression, and his three words, "You think so?" However, after a couple of days of medical treatment the patient was no better, so a cutting took place and a stone the size of a pigeon's egg was removed from the kidney. Remember there were no x-rays or cystoscopes in the country in 1898. In fact, the x-ray was only discovered when I was a student, and I saw what was probably the first radiogram developed in Canada, which was done by Professor Girdwood, of Montreal, with an old Rumkorff coil and a Crookes' tube. The picture was Madame Albani's hand.

I have always been interested to inquire how and by what means a man here and a man there in the various walks of life has overtopped his fellows and attained eminence, consequently I have long been fond of biography, and in fact have just finished reading the lives of two out-

standing men—Cecil Rhodes and Victor Horsley—Rhodes a man of the greatest vision that I think our Empire has produced; witness his scholarships; Horsley, as you all know, *facile princeps*, the brain surgeon of the world; and I find that the road by which these and any other outstanding men in any walk of life that I know of have reached the top has been the same—the same old, long dusty road of toil; and I dare to say, Mr. President, that no one has trodden that path more faithfully than Frank Hamilton Mewburn, so that were I asked what features characterized the life of our old friend, I should say there were three: First, an absolutely insatiable appetite for work to the exclusion of all else; second—an infinite capacity for taking pains, no detail being too small to be neglected; and, lastly, though this probably should be first, and I think he would have it so, his humanity, in that he has ever given of his best to rich and poor alike, completely and entirely oblivious of reward.

DIABETES MELLITUS IN TWINS.—The cases reported by Allen H. Bunce and Mark S. Dougherty, are unusual, first because the patients were twins and, second, because both cases manifested themselves within a few months of each other and not until the patients were 27 years of age, and, third, because the patients presented certain congenital anomalies in common. One patient had a convergent strabismus with an amblyopia of the left eye, while the other had a divergent strabismus with an amblyopia of the right eye. This mirror effect of a congenital defect in identical twins is very rare and presents interesting possibilities of speculation. Both men had a horizontal nystagmus of both eyes and a rather high degree of hyperphoria, and both had a partial deafness of the conductive type. They responded to the same treatment and maintained a normal blood sugar on the same diet plus 20 units of insulin daily. A review of all the cases of diabetes mellitus in twins thus far reported fails to reveal any extraneous etiological factor. There is no one period in life in which the disease seems to occur more frequently than in any other. However, it usually develops in twins simultaneously and runs the same clinical course. The occurrence of a disease in identical twins would seem to indicate some inborn or hereditary constitutional factor, while the development of a disease in one twin and not in the other would seem to indicate some other etiological factor. A similarity in two persons that is as marked as in these men and extends alike to appearance, character, metabolic disturbances and even to the finer details of similar congenital defects would seem to render them more liable to develop the same disease.—*J. Am. M. Ass.* 92: 52, Jan. 5, 1929.

ASCHEIM AND ZONDEK'S TEST FOR PREGNANCY.—I. Odescalchi reports the trial of Ascheim and Zondek's

biological test for pregnancy in thirty patients. A negative reaction was found in only two cases of pregnancy; one patient was at term and the other had been delivered six days previously. The authors of the test state that the responsible hormone—that of the anterior lobe of the hypophysis—diminishes in the urine towards term, and disappears on the eighth day after delivery. According to Ascheim and Zondek, their test gives positive results early in the first month after conception; in 250 cases of pregnancy 2 per cent of errors occurred, and a like number of non-pregnant patients gave 1.6 per cent of errors. The essential feature of the test is the detection in the patient's urine of a sufficient amount of the hormone of the anterior lobe of the pituitary body to induce, when injected into infantile white mice weighing 6 to 8 grams, intra-follicular hæmorrhage and/or luteinization and formation of corpora atretica in the ovaries. Acid, filtered morning urine is injected subcutaneously in doses of 0.2 to 0.4 c.c.m. six times in three days; the ovarian changes characteristic of a positive test can usually be recognized macroscopically after killing the animals. According to Ascheim and Zondek the ovarian hormone (folliculin), which is present in considerable amounts in the urine from the eighth week of pregnancy onwards, is not of importance in the test; besides being less abundant than the hypophyseal hormone, it is increased in the urine at the menstrual epoch and the climacteric. Ascheim and Zondek regard the pituitary hormone as the motor concerned in exciting ovarian activity; they found the pituitary to be the sole organ extracts of which, injected into infantile mice, produced a state of ovarian hyperfunction and oestrus, and they noted that pituitary extract (unlike ovarian extract) injected into castrated female mice was ineffective.—*Abs., Brit. M. J.*

Association Notes

The Annual Meeting, Montreal

June 17, 18, 19, 20 and 21.

Announcement No. 1 appeared on page 70 *et seq.* in the January issue and dealt with the General Plan of the Meeting, and gave a list with addresses of Local Chairmen and Secretaries in charge of the General and Sectional Programs; also Hotel Accommodation with rates.

Announcement No. 2 was printed on page 197 *et seq.* in the February issue. The transportation arrangements were outlined in detail under the *Identification Certificate Plan*, together with a table comparing the cost of travel under other plans.

Attention was drawn to a *Post Convention Cruise* on the S. S. "Northland," offered by the Clarke Steamship Company, and endorsed by the Executive of the Association. It is here emphasized that this cruise is dependent upon application of a sufficient number of passengers, as it is in every respect a special trip for members of the Canadian Medical Association.

PROGRAM OF GENERAL SESSIONS

The two Committees, French and English, are prepared to announce that six outstanding speakers from Europe have been secured. They are:

Professor E. Rist, of Paris, diseases of the chest;

Professor L. Ambard, of Strasbourg, biochemist and famed as the author of Ambard's formula to determine urea retention in nephritis;

Sir St. Clair Thomson, of London, an international authority on the nose and throat;

Mr. J. A. Cairns-Forsyth, of London, Surgeon to the Waterloo and French Hospitals, and an authority on surgery of the pancreas;

Dr. P. F. Armand-DeLille, of Paris, Paediatrist;

Dr. G. B. Roatta, of Florence, Italy, Internist.

All of the above are fluent speakers in both English and French, and will address the Sessions in both languages.

PROGRAMS OF SECTIONS

These are not sufficiently crystallized for publication. In the April issue will appear the Preliminary Program in detail.

AUTOMOBILE TRANSPORTATION

GARAGE ACCOMMODATION: For those members who plan to come to Montreal by automobile ample garage accommodation is assured, not only convenient to the hotels but in any part of the city. Traffic congestion and parking regu-

lations are such as may determine some members to garage in the more decentralized areas. With all the large garages arrangements can be made for delivery of and calling for cars.

Dominion Square Garage, 1200 Stanley street; capacity 700 cars; close to and serves the Windsor Hotel.

Royal Garage, McGill College Avenue; capacity 500; by special messenger arrangement serves the Mount Royal Hotel, and is the official service garage of the Royal Automobile Club of Canada.

Queen's Garage, 647 St. James Street, serves the Queen's Hotel.

Viger Garage, 775 Bonsecour Street, serves the Place Viger Hotel.

It is superfluous to list more. The new Dominion Square Building, now under construction, is expected to be completed by June, and will have a four-storey underground garage to accommodate 600 cars.

Anyone who plans to come to Montreal by motor, and who is not familiar with the routes can obtain information by applying direct to the Montreal Tourist and Convention Bureau, New Birks Bldg., Montreal, when particulars concerning the roads and routes will be given and maps furnished by Mr. Geo. A. Graftey, Convention Manager.

IMPORTANT
HAVE YOU SECURED YOUR HOTEL
RESERVATIONS?

A FEW STATISTICS

By T. C. ROUTLEY, M.D.,

*General Secretary,
Toronto*

The Department of Labour, Canada, issues from month to month magazines and folders which set forth many enlightening things about our country. In two issues just to hand one is interested to find statistics dealing with wages and cost of living. Using 100 as an index, the table of rates of wages for various classes of labour in Canada, shows the following averages:

1901	67.4
1913	100.
1920	197.
1928	187.

Or, put in other words, the average wage-earner in Canada to-day receives approximately three times what he was paid for similar work in 1901, and very nearly double that received the year before the Great War.

Referring to the table dealing with changes in the cost of living in Canada, and again taking 100 as the index, the following costs are noted:

1913	100
1914	103
1917	158
1919	210
1920	251
1923	163
1925	160
1928	157

It will thus be seen that the average cost of living in Canada to-day is a little more than one and one-half times the cost a year before the War.

Referring to medical tariffs, it will be found that, in 1901, an office call in most parts of

Canada was worth \$1.00. In 1928, an office call, as charged for by a great many general practitioners, runs from \$1.50 to \$2.00. Medical fees to-day are possibly double what they were in 1901; whereas, the average wage-earner's income has increased approximately three-fold.

These figures are interesting and illuminating, in view of the fact that not infrequently criticism is levelled at the medical profession for its charges.

PRACTICAL SERVICE

From time to time, a notice has been inserted in the *Journal* stating that we will be glad to be of service to practising physicians and recent graduates who require practices, assistants, or locations. That this department has been of real service to a large number of the profession is clearly indicated in the following report taken from our records.

During the past three years, we have dealt with the following:

Applications for positions	340
Doctors wanting help, (locum tenentes or assistants)	167
Practices listed with us for sale	77
Total	584

Lying back of these figures are countless interviews and letters, and the consumption of much time, particularly in dealing with the first group, namely, the 340 who applied for positions, practically all of this number being recent graduates.

This department, we believe, is of real practical value to our members, and, of course, is operated without any additional cost to those whom we serve.

Members wishing our help at any time in this connection are invited to write to the General Secretary.

NEW SUGARS.—Two new sugar industries made large strides in the United States during the past year, according to Dr. George K. Burgess, director of the U. S. Bureau of Standards. Testifying before the House Appropriations Committee regarding the \$75,000 needed to carry on the sugar work in 1929-30 he said that between 100,000 and 200,000 tons of crystallized dextrose, or corn sugar, were made and marketed in the United States during the past year. Two factories in the United States are now devoting themselves to the making of sugar from corn, he said. One of them was built during the past few months at Kansas City at a cost of \$1,500,000. Commercial production of levulose, a sugar sweeter than cane or beet sugar, is, in Dr. Burgess' opinion, one of the most profound economic developments of the past fifty years. While

crystallized levulose has been made from artichokes chiefly at the Bureau of Standards to date, the discovery of the fact that diabetics could use this sugar to better advantage than sucrose has caused considerable scientific experimentation. The result has been that the Jerusalem artichoke, from which levulose is made, has grown in popularity as a diabetic food, and within the past month an American company has been developed for manufacturing Jerusalem artichoke food products on a large scale. This growing market for Jerusalem artichokes has been most gratifying to the farmers who last year grew considerable crops of the tuber, and who have found that they were able to realize several hundred dollars per acre on their investment.—*Science* 14: Jan. 11, 1929.

Hospital Service Department Notes

THE COST OF HOSPITAL SERVICE

One hears a great deal nowadays about the exorbitant cost of hospitalization. The public press seems to delight in dwelling on this question and this attitude is reflected in the many open letters written by "victims" or their sympathizers and published in the daily papers. One frequently hears the demand, especially from Old Country people, that our hospitals revert to the methods of British and continental hospitals wherein the great bulk of the working-class people obtain treatment for a mere pittance. Recently, the writer met a committee from the Labour Forum of one of the large cities who had been appointed by their fellows to investigate hospital and medical costs. That their report will advocate radical changes may be expected, but, to their credit be it said, these men are *studying* the situation and have learnt many facts of which the general public are only too ignorant.

Judging by the assertions which are so frequently heard, we are led to the conclusion that the majority of the general public do not realize the amount of money required to run the average hospital and to maintain the efficiency which these very people demand. Because the patient may have no appetite and may require little nursing does not warrant the frequent statement that the care of such a patient "did not cost the hospital anything." One would like to take such a critic through the costly laboratories of any modern hospital; through the great engine rooms of, say, the Ottawa Civic Hospital; to see the elaborate kitchens with their batteries of labour-saving devices in the big hospitals of Montreal, Toronto, Winnipeg, Vancouver and other cities; to see the water-softeners in the prairie hospitals and elsewhere, the great laundries with their steaming mangles and whirling extractors, the refrigerating plants, the store- and supply-rooms and other departments "behind the scenes." Such a trip would be a revelation and would go far to explain why several of our larger hospitals spend almost, or over, a million dollars in maintenance alone. One Canadian hospital actually spends \$30,000 annually in *interest charges* on its capital indebtedness.

Few people realize that the employees in a hospital (not including the medical staff) frequently outnumber the total number of patients served. This is especially noticeable in hospitals with a high proportion of private beds, or with large pædiatric, pathological, diagnostic, or dietary services. Were hospital salaries not

comparatively low, the salary item alone would render hospital costs prohibitive. Yet, with few exceptions, hospitals are short of help. Were it not for the general use of labour-saving devices the personnel would be much larger, and the costs would be correspondingly higher.

The average cost per patient per day in general hospitals throughout Canada is \$3.45. This is an exceedingly low figure when one considers the cost elsewhere and also the type of service given here. An analysis by our Department of Hospital Service of the returns upon which this figure is based is very interesting:

Under 50 beds.....	\$3.45
50-100 beds.....	3.34
100-200 beds.....	3.21
200-300 beds.....	3.47
300-400 beds.....	3.58
Over 400 beds.....	3.69

One notes that the hospitals with the lowest maintenance are in the 100-200 group. These hospitals can buy to better advantage than their smaller neighbours, thus reducing their costs, and do not, as a rule, maintain the extensive pathological and biochemical laboratories and other diagnostic or therapeutic facilities which raise the maintenance costs of the large hospitals.

When one considers these costly, but necessary, facilities for diagnosis and treatment provided by the modern hospital, and when one realizes that by these means countless lives have been, and are being saved—lives that would assuredly have been lost without this modern equipment—we think, not of the high cost of hospital care but of the *low cost* of hospitalization. That costs are still too high for the average wage-earner is only too true, but the remedy lies, not in decreasing the efficiency of the hospitals, but in so augmenting their revenue by increased government aid or other methods that the thrifty struggling citizen who is "down" does not have to carry part of the burden of the needy or the shiftless at a time when he can least afford it.

THE CARE OF RUBBER GLOVES

Rubber goods are costly. Despite remarkable strides in manufacture they are not long-lived, at best, and by injudicious treatment can be killed in infancy.

One of the quickest ways to kill rubber is to apply an oily substance for lubricating. Vaseline has long been generally used as a

lubricant in hospitals and everyone knows the lifeless, oversized, much-bepatched, fragile glove that the nurse hands out and we put on with such tender care. One large general hospital in Canada has promulgated an order forbidding the use as lubricant of all oils, vaseline or liquid paraffins. Not only has this hospital found that vaseline rots the rubber but the hottest of soapy water and considerable time on the part of the nurse or attendant is required to effectively remove the lubricant after using.

As a substitute a "Tragacanth Jelly" is employed. This is an efficient lubricant, washes off promptly in either cold or hot water, does not deteriorate the rubber and is *cheap*. As made by the hospital dispenser, the cost is less than 20c. per quart.

Formula—

Powdered Tragacanth (Squibbs)	2 oz.
Glycerine	18 oz.
Boracic Acid—Saturated Solution	62 oz.

Rub up the tragacanth and glycerine in a mortar, and add to this the boracic acid solution.

For office and home use many similar lubricating jellies are on the market in convenient collapsible tubes.

The cleaning of the gloves after operation is greatly facilitated if the surgeon and his assistant remember to take but a few seconds of time to rinse the blood and other material off the gloves and lather them with a little soap before removing them. This makes the cleaning process a much easier task, reduces wear and tear on the gloves, and is one of the many "courtesies" which a surgeon can render to his nursing assistants. Nurses are human; they appreciate thoughtfulness, and the co-operation that results will repay a surgeon a thousand fold for his care.

COMING HOSPITAL CONVENTIONS

A number of interesting hospital conventions have been planned for the near future. Outstanding speakers have been obtained for the different meetings, and excellent and well diversified programs have been arranged, so as to interest the physician, the superintendent, the nurse, and the trustee. It has been a matter of regret to hospital association executives that the number of practising physicians attending the

meetings in the past has been relatively small, despite the fact that the doctors are vitally interested in the welfare and efficiency of the hospitals.

MAY 6-10—CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA

Fourteenth Annual Convention and the Third Annual Hospital Clinical Congress, Stevens Hotel, Chicago, Ill. An excellent program of clinics and addresses has been prepared.

JUNE 13-15—INTERNATIONAL HOSPITAL CONGRESS ATLANTIC CITY

This is a unique venture which has aroused considerable interest in Europe, South America and elsewhere. A large delegation from other countries is assured and a program including world-famous authorities on their subjects has been arranged. Dr. Geo. F. Stephens, of Winnipeg, represented Canada at the preliminary executive meeting held in Paris a short time ago.

JUNE 17-24—AMERICAN HOSPITAL ASSOCIATION ATLANTIC CITY

This widely attended convention will follow the meeting of the International Hospital Congress. This is another occasion when one would desire to be twins, for this date coincides with the date set for the annual meeting of the Canadian Medical Association in Montreal.

HOSPITALS A GENERATION AGO

"A generation ago most hospitals were not so good as a third-rate almshouse of to-day. Equipment was poor and inadequate; laboratories were almost nil; diagnostic apparatus was crude and infrequent; there were few special diets; there were no dietitians, no physiotherapists, no x-ray departments. To us the x-ray has become a matter of daily usage, not savouring of the miraculous or unusual; it is as though it had always been. Yet so short a time ago as January 2, 1896, the first x-ray photograph was made in America by Prof. Michael Pupin and it was in the following month that the first surgical operation under the guidance of an x-ray picture was performed. Many martyrs, gloriously dead in the service of humanity, strew the path that roentgenology has traversed in the past thirty-three years, yet ever it goes forward to new accomplishments and victories."—*Modern Hospital*, January, 1929.

G. HARVEY AGNEW

Provincial Association Notes

FORTY-NINTH ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION

HAMILTON, MAY, 28, 29, 30, 31, 1929

The Committee in charge of this Convention is arranging a program which it is hoped will meet with the approval of all members of the Association. The scientific part of the proceedings will consist of addresses from about sixty-five speakers. The Canadian Tuberculosis Association will meet in Hamilton at the same time, and the committee is indebted to it for bringing three outstanding European medical men, Sir St. Clair Thomson, London, England; Professor Armand DeLille, Paris, France; and Professor Rouatta, Florence, Italy, all of whom will contribute to the program. Hamilton is the hub of the famous Niagara District, and is but fifty miles distant from Niagara Falls. Ample entertainment, in the way of luncheons, dinners, drives, golf, dancing, bowling, etc. will be provided. Each morning at 7:30, clinics will be given at the hospital by local medical men; sectional meetings will be held from 9:00 to 11:00 a.m.; the rest of the day will be devoted to general sessions. There will be a dinner each evening with addresses from outstanding visitors. After 10:00 p.m. each evening there will be dancing. At the present date, (February 13th), the following medical men have consented to give papers:—

SURGERY

Dr. G. S. Fahrni	-	Winnipeg;
Dr. R. A. McComb	-	Toronto;
Dr. H. Lyle	-	New York City;
Dr. A. Lockwood	-	Toronto;
Dr. J. R. Parry	-	Hamilton;
Dr. H. A. Bruce	-	Toronto;
Dr. G. W. Crile	-	Cleveland, Ohio;
Dr. A. Primrose	-	Toronto;
Dr. C. H. Mayo	-	Rochester, Minn.;
Dr. G. A. Ramsay	-	London;
Dr. H. B. Moffatt	-	Ottawa;
Dr. N. S. Shenstone	-	Toronto;
Dr. E. C. Janes	-	Hamilton;
Dr. D. E. Robertson	-	Toronto;
Dr. O. W. Niemeier	-	Hamilton;
Dr. W. E. Gallie	-	Toronto;
Dr. G. E. Binkley	-	New York City;
Dr. G. H. Stobie	-	Belleville.

MEDICINE

Professor Rouatta	-	Florence, Italy;
Dr. J. A. Macgregor	-	London;
Dr. W. S. Lemon	-	Rochester, Minn.;
Dr. W. R. Campbell	-	Toronto;
Dr. H. M. Young	-	Iroquois Falls;
Dr. J. R. Williams	-	Rochester, N.Y.;
Dr. G. C. Hale	-	London;
Dr. R. D. Rudolf	-	Toronto;
Dr. W. B. Kendall	-	Gravenhurst;
Dr. Walter Timme	-	New York City;
Dr. J. G. Cunningham	-	Toronto;
Dr. G. A. McLarty	-	Toronto.

HYGIENE

Dr. J. G. FitzGerald	-	Toronto;
Dr. N. E. McKinnon	-	Toronto;
Dr. A. G. Fleming	-	Montreal.

PATHOLOGY

Dr. William Magner	-	Toronto.
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OBSTETRICS AND GYNAECOLOGY

Dr. J. O. Polak	-	Brooklyn, N.Y.;
Dr. Geo. Hooper	-	Ottawa;
Dr. J. C. Masson	-	Rochester, Minn.;
Dr. M. E. Gorman	-	Lindsay;
Dr. G. W. Mylks	-	Kingston;
Dr. E. Williams	-	London;
Dr. H. D. Cowper	-	Welland;
Dr. W. O. Stevenson	-	Hamilton.

DERMATOLOGY

Dr. Howard Fox	-	New York City;
Dr. J. F. Burgess	-	Montreal.

RADIOLOGY

Dr. G. E. Richards	-	Toronto.
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EYE, EAR, NOSE AND THROAT

Sir St. Clair Thomson	-	London, Eng.;
Dr. E. A. McDonald	-	Toronto;
Dr. G. E. Hodge	-	Montreal;
Dr. D. E. S. Wishart	-	Toronto.

PAEDIATRICS

Professor Armand DeLille	-	Paris, France;
Dr. F. F. Tisdall	-	Toronto;
Dr. R. E. Harris	-	Toronto;

NEUROLOGY

Dr. K. G. McKenzie	-	Toronto;
Dr. F. H. McKay	-	Montreal.

ANÆSTHESIA

Dr. John Evans	-	Buffalo, N.Y.
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The members of the Ontario Medical Association cannot afford to miss this meeting. Further announcements will be made in each issue of the *Journal* until the time of the meeting.

W. J. DEADMAN, Chairman,
Committee on Arrangements.

G. R. D. FARMER, Secretary
Committee on Arrangements.

University Notes

King's University, Halifax

On January 24th, President A. H. Moore announced at a meeting of the Governors of King's University that the financial quota of \$400,000, the objective set during the recent campaign for funds carried on by the University of King's College, had been raised. The Carnegie grant of \$600,000, given conditionally on the raising by Kings of \$400,000, has been paid over to the university.

The amount pledged during the campaign was \$443,509, of which \$405,298 have been already paid in. Contracts have been awarded, calling for the expenditure of \$445,000 in the construction of new buildings.

McGill University

For purposes of surgical research the Rockefeller Foundation has donated \$85,000 to the Medical Faculty of McGill University. The research is to be conducted in the biological laboratories of the university and in the annex devoted to experimental surgery in the Royal Victoria Hospital. The money is to be given in yearly instalments over four years and is largely donated to further the co-operation now existing between the surgeons and the various laboratory staffs of the university.

Queen's University

On Monday, January 21st, the Medical Faculty and student body had the privilege of seeing the Harvey film, produced in London last summer under the auspices of the Royal College of Physicians, for the celebration of the tercentenary of the publication of the immortal "De Motu Cordis et Sanguinis in Animalibus." For the loan of the film we are indebted to Professor Best of Toronto. It proved a fascinating experience to witness the various steps in the proof of the circulation of the blood as exemplified through the performance of many of the very experiments devised by Harvey himself three hundred years ago.

On Tuesday, February 5th, Queen's was honoured by a visit from Lt.-Col. Harrison, now attached to the Ministry of Public Health in Great Britain. In the afternoon he addressed the senior years on "Certain aspects of the problem of syphilis in relation to public health." In the evening, after being entertained to dinner in the new University Union, he addressed the

Kingston and Frontenac Medical Society upon "The diagnosis and treatment of gonorrhœa." It would be hard to imagine an hour's talk more charged with useful information, based upon a wider or better studied clinical experience.

The following were the post-graduate lectures delivered during the past month: January 18th, Dr. F. A. Cleland, Toronto, "Radium treatment in gynæcological conditions." January 22nd, Dr. R. R. Graham, Toronto, "The differential diagnosis of upper gastro-intestinal lesions."

Toronto University

Dr. Charles Herbert Best, who has been appointed to the Chair of Physiology at the University of Toronto, to succeed Professor J. J. R. Macleod, first came into prominence when, while still an undergraduate in medicine, he was associated with Dr. Banting in the discovery of insulin, hailed as one of the greatest contributions to modern medical science and one of the outstanding discoveries of medical history.

Before his latest appointment, Dr. Best was Assistant Professor of Physiological Hygiene, Assistant Director of the Connaught Laboratories, Head of the Department of Physiological Hygiene, and Research Associate in the Banting-Best Medical Research unit.

He was born in the United States at West Pembroke, Maine, and received his early education at the Pembroke High School and Harbord Collegiate Institute. In 1921 he received his B.A. from the University and took his M.A. the following year. At this time he was working in the Department of Physiology, and was appointed assistant to Dr. Banting, a comparatively unknown young doctor who had obtained permission to use the laboratory to carry on important research work. A year later they gave the world their famous treatment for diabetes, insulin, and collaborated on a work of tremendous medical value, "The internal secretions of the pancreas." Dr. Best shared with Dr. Macleod and Dr. Banting, the Nobel Prize, which was awarded them for this discovery, and, later, their names were associated when the Ontario Legislature founded the Banting-Best Chair of Medical Research at the University of Toronto. Dr. Best was awarded the Reeve Prize in 1923. This is given for the best published report of work done in the laboratories by a Research Fellow or junior member of the staff in any department in Medicine.

In 1923 he took his degree of M.B. from the University, and was appointed Assistant Director of the Connaught Laboratories. On graduation, he was awarded the Ellen Mickle Fellowship and the J. J. Mackenzie Prize. The following eighteen months he spent doing post-graduate work in London. He also spent six months there last year, and for important work done in physiological research was awarded in 1928 the degree of D.Sc. by the University of London. His work there alone was such as to bring him considerable recognition in the medical world and its results are contained in the proceedings of the British Medical Association, under the heading "Histamine in the body tissues."

The appointment of so young a man to such a position, while it is almost unique in the annals of a large university, is the logical sequel to the meteoric career which has kept Dr. Best's name before the public for the past few years.

Through the kindness of the Canadian Medical Association and with the active assistance and co-operation of the Secretary, Dr. T. C. Routley, a moving picture film, prepared by Professor G. Canti, of Cambridge University, on "The living cell" and "Jensen's rat sarcoma," was shown to the students of the Second and Third Years on January 18th; to the Fourth, Fifth and Sixth Years on the 22nd and to the Council and Teaching Staff of the Faculty of Medicine on the 25th of January.

Manitoba University

On February 11th, a thousand University of Manitoba undergraduates held a parade to draw attention to their request for new university buildings, and, following the ceremonies attendant on the formal opening of the second session of the eighteenth legislature, presented to Premier Bracken, through the President of the Students' Union, the following petition:

"To the honorable Legislative Assembly of Manitoba in legislature assembled:

"The petition of the undersigned undergraduate students in the University of Manitoba humbly sheweth:

"That the buildings at present provided for their accommodation are insufficient, unhealthy, and inadequate.

"Wherefore, your petitioners humbly pray that your honorable house may be pleased to take immediate measures as the house may think it expedient to remedy this condition."

In reply, the Premier stated that the Lieutenant-Governor in his speech from the throne had made reference to the fact that the government intended to ask the legislature to make

provision during the present year for the construction of additional accommodation urgently needed by the University of Manitoba. The amount of money to be provided and the location of the new buildings had not been decided. Mr. Bracken expressed the hope that the whole problem would be settled in a manner that would be satisfactory to the people of the province as well as the students and the authorities of the university.

Dr. William Boyd, Professor of Pathology, gave the second of a series of popular lectures on the general theme, "Science in the Service of Man," in lecture theatre A of the university buildings, on February 8th. Professor Boyd outlined the advances in medicine and showed how these had conduced to the welfare of man. Professor Shipley gave the first lecture on February 1st, on chemistry, and in the succeeding lectures Professors Normal Hall and R. K. McClung will deal with the contributions of engineering and physics to man's happiness and prosperity.

To the Scientific Club of Winnipeg, Professor J. C. B. Grant presented recently a communication on "The Anthropometry of the North American Indian," and Professor A. T. Cameron spoke on "The work of the Biological Board of Canada."

Dr. C. H. Goulden, Senior Cereal Specialist, Dominion Rust Laboratory, Winnipeg, addressed the Club on "Elementary principles of statistics," and Dr. M. S. Lougheed, on "Diphtheria toxins and toxoids."

The University of Melbourne

As the result of the promise of £2,500 per annum by the Premier of Victoria, which will be supplemented by a gift of £20,000 from the Edward Wilson Trust, the council of the University of Melbourne has decided to proceed at once with the establishment of a Chair of Obstetrics. The council has resolved that the salary attached to this appointment shall be £2,000 per annum. The holder will not be permitted to engage in any private practice for fees while he is the occupant of the chair, and will be available, free of charge, for consultations with the medical advisers of the Women's Hospital and the Queen Victoria Hospital in confinement cases presenting features of serious difficulty or risk. Subject to these conditions, the council has remitted to the faculty of medicine the task of drafting the regulations for the establishment of the chair. The Faculty has not yet prepared its report.

Special Correspondence

The Edinburgh Letter

(From our own correspondent)

Since its erection in 1681, the Royal College of Physicians has initiated several important measures for promoting the welfare of the citizens of Edinburgh. The Royal Infirmary, the most celebrated offspring of the Physicians' enterprise, is to celebrate the bi-centenary of its foundation this year. In the early days the sick poor received precarious attention in both the towns and country parts of Scotland. A few institutions existed for the housing of the aged or for the detention of lepers, but, until the establishment of the old Royal Infirmary there was no institution in Edinburgh devoted entirely to the reception of persons unable to pay for treatment. So inadequate was the accommodation that Cromwell, after his "crowning mercy" at Dunbar, quartered his sick and wounded soldiers in Heriot's Hospital. This was, and still is, a school designed by its founder-jeweller to King James VI, the "Jingling Geordie" of the Fortunes of Nigel,—for the housing and education of the orphan sons of poor citizens, and was certainly not intended to be used as a military hospital.

Early in the eighteenth century the magistrates of the city made a few perfunctory arrangements for the disposal and treatment of the sick poor, and appointed a physician and a surgeon to attend to such persons as might present themselves for treatment. The surgeon's salary was fixed in 1723 at £33 6s 8d Scots (sixteen dollars) per annum. It is hardly to be wondered at that this scale of remuneration was found to be inadequate. The College of Physicians had since its inception "served the poor of the city and suburbs," and in 1704 purchased a house where advice was given gratis on three afternoons in the week. The Fellows of the College who attended the sick under this charitable arrangement found that the conditions under which the patients lived were so deplorable, that they advised the erection of a hospital or infirmary where treatment could be carried out effectively. In this they were merely copying the practice of the more famous continental medical schools where hospitals already existed. The Physicians received strong support in furthering their project from Dr. John Monro, the father of Professor Alexander Monro, the first of the Monro dynasty of anatomists. This initial attempt to found a hospital was a failure. The Physicians however were not discouraged, and at a later date continued their efforts to raise money.

In 1728, a sufficient sum had been collected and a committee of managers was appointed. A small house was rented at the top of Robertson's Wynd for £50 Scots per annum. This was in close proximity to the old High School Wynd, and adjoined the ground which for three or four hundred years had been occupied by the Dominican Monastery of Blackfriars. This was opened in 1729, and gave accommodation for six patients.

In 1738 was laid the foundation stone of a new hospital, designed for 200 patients. This building after numerous delays was completed ten years later. During the disturbed times of 1745-6, like Heriot's Hospital in Cromwell's day, it was used as a military hospital. This building with various additions served the sick poor for several generations. In 1879, the former hospital having become inadequate for the numbers who applied for admission, the present Royal Infirmary was opened for the reception of patients.

From such modest beginnings (six beds on a back close) has sprung our present hospital, with accommodation for over 900 in-patients, and buildings, which with recent additions have cost more than half a million sterling. During last year, 19,680 patients were admitted for treatment. In addition, 62,085 out-patients received medical or surgical aid, or attended at the various special departments. The total ordinary expenditure was £136,831 for the year. It is of interest, as showing the wide appeal made by this institution, that there are 120,000 persons subscribing regularly and systematically to its funds. These include among others many of the coal-miners and oil-workers of the Lothians and Fife, who in spite of hard times and trade depression signify their appreciation of the work of the hospital by giving generously.

The history of the Royal Infirmary is the history of the Edinburgh school. Clinical surgery has been taught there since 1766, while the clinical teaching of medicine had been carried on for nearly twenty years before that. In its wards and theatres lectured those famous physicians and surgeons, the lustre of whose names attracted crowds of students to our northern capital. The two hundredth anniversary will find the Infirmary filling a greater place than ever in the economic life of Scotland and on the eve of a still further extension of its sphere of activities.

GEORGE GIBSON

23 Cluny Terrace, Edinburgh.

The London Letter

(From our own correspondent)

At a time when the state of industry is one of the most important subjects discussed in the newspapers it is fitting that some aspects of the health of the worker should be receiving special attention. The great strides made in industrial hygiene during the last hundred years, and the spectacular model factories, associated with the names of such firms as Cadbury and Lever, are apt to blind us to the realization of how much still remains to be done. Sir George Newman, in his annual report on the health of the school child, recently issued, stresses one of the problems still remaining, which is the maintenance of the health of the boy and girl after they leave school at the age of fourteen until they come under the provisions of the national health insurance acts. The average boy and girl tend to go backward during the two or three years succeeding the leaving of school, and it is urged that there should be closer co-operation between the school medical service and the factory surgeons, so that this important gap is bridged. Another aspect of health in industry, which is receiving attention, concerns the importance of nervous diseases. The psychological study of such disorders as telegraphist's cramp and miner's nystagmus has indicated that not only are these physical disorders often the result of emotional stress and psychological unbalance, but also many other less defined illnesses can be traced to similar sources. Debility, anæmia, nervous breakdown, gastritis, and such-like labels, merely describe the vague physical upsets of which patients complain. The real trouble lies much deeper in hidden psychological complexes. Dr. Millais Culpin, in a lecture at the Conference of Industrial Welfare Workers, at Oxford last year, dealt with this subject and indicated that the solution of the problem of these nervous disorders lies in personal adjustment. Each case has to be handled separately, with sympathy and understanding. When the careless housemaid breaks the best china she must no longer be reprimanded, but treated by a trained psychologist! This is perhaps an exaggeration of what Dr. Culpin meant to infer, but there is enough truth in the statement to indicate some of the difficulties which face anyone who is to persuade employers that carelessness may be a disease.

Last year it was rheumatism and cancer: the year 1929 opens with an attack on asthma. In January, the Lord Mayor of London inaugurated a national appeal for funds for the Asthma Research

Council, which has already got to work. Thanks to the generosity of the Halley Stewart Trust, a clinic has been established at Guy's Hospital, where the biochemical aspect of the subject will be especially investigated; and another clinic at the Hospital for Sick Children, Great Ormond Street, will deal with the beginnings of the disorder in childhood. Various centres have been established throughout the country and a research Fellow has been visiting continental centres, to study the technique of modern methods of treatment, especially by physiotherapy. Dr. Arthur F. Hurst is chairman of the medical advisory committee, and has himself been a sufferer from asthma for thirty-five years. That in itself is perhaps a favourable point about asthma research, that its victims can help in the campaign against the disease, with some hope of help from their energies, whether these be scientific, organizing, or financial. It may, of course, work the other way, in producing a pessimistic outlook, and the Asthma Research Council has already been rapped over the knuckles for announcing that there was no cure known for the condition. Still, this is on the whole a good line from which to start.

The position of women medical students in London has been referred to more than once in these notes. The committee appointed by the University of London "to inquire into the limitations placed upon the medical education of women undergraduates by the exclusion of women students from the medical schools of most of the London Hospitals" has presented its report to the Senate. The comments of the medical schools referred to, and of the medical journals, are not available as we write. A glance at the report gives the impression that in the opinion of the committee the women have behaved themselves very well in the past, but some men consider that "they are a nuisance about the place" in a hospital. It is recommended that three types of clinical instruction should be provided—for men only, for women only, and for men and women. This is all right as far as it goes, but the difficulty is to obtain sufficient of the last of these three, and it is very doubtful whether asking medical schools, at present taking only men, to admit a quota of women will meet with any success. As to the possibility or advisability of bringing pressure to bear, financial or otherwise, the committee is silent, but it is along these lines that events can be expected to move in the next few months.

ALAN MONCRIEFF

London, February, 1929.

The State Department of Health of Ohio reports, after a special investigation, that a child was born to parents whose combined ages totalled 121 years. At the time of the child's birth the father was past 71 and the mother past 51.

The average Canadian family of five consumed 429 pounds of sugar in 1927 or 36 pounds less than in the previous year. This was revealed in a review of the sugar industry issued by the Dominion Bureau of Statistics.

Medico-Legal

DRUGLESS PRACTITIONERS IN SASKATCHEWAN

The Legislature first considered the position of the Drugless Healers in 1913 when a bill relating to osteopaths came up for consideration. In 1917 the chiropractors asked for recognition but the Legislature did not consider it wise to have two separate classes of drugless healers, so they were combined under the Drugless Healers Act. The osteopaths and chiropractors each wanted their own legislation and a strenuous fight ensued before the Law Amendments Committee. Twenty drugless healers registered under the Act and continued to practise legally until 1927 when they came before the Legislature with an amending bill asking for certain concessions. In 1927 there were fourteen legally qualified practitioners, but there were also a good many practising illegally; at present there are fifty-three practising illegally in the province. The present law obliges the drugless healers to pass examinations set by the Faculty of the University of Saskatchewan in Chemistry, Bacteriology and Pathology, Anatomy, Physiology, Diagnosis and Sanitary Science, Osteopathy or Chiropractic. Last year eleven tried these examinations and one passed.

Mr. Garry, member from Yorkton, introduced a bill at the 1929 session of the Legislature under which the Examining Board would consist of two osteopaths, two chiropractors, and the President of the University. This bill was referred to the Committee on Law Amendments. Discussion of the bill occupied two mornings. The drugless healers employed a very able lawyer to plead their cause; the Saskatchewan College of Physicians and Surgeons were represented by Dr. A. McG. Young and Dr. O. E. Rothwell; and the Regina and District Medical Society was represented by

Dr. S. E. Moore. Dr. Uhrich, Minister of Health, had gathered much data on the curricula of the osteopathic and chiropractic schools. It was a surprise to know that chiropractors are given a course in gynaecology and obstetrics.

The struggle was waged over the question of the fairness of the papers set by the University. The counsel for the drugless healers said the papers were either set by doctors or by "those making doctors." He was reminded that the professor of chemistry also trained arts students, agricultural students and veterinary students; that chemistry was an exact science and was the same for everybody.

Finally, the Committee on Law Amendments recommended the Bill to the Legislature, with amendments providing for the extension of the examination period to May 1, 1930, for drugless healers who were practising in Saskatchewan before May 1, 1927, and also for the election of a drugless healers' council by vote among their own members. The University is to remain the authority for appointing the examining board and selecting textbooks in consultation with the drugless healers' council.

Counsel for the drugless healers objected to the bill, as amended, because his clients were convinced that with the examinations conducted as they are they cannot pass them. Hon. T. C. Davis, Attorney General, said that the other professions treating the human body were examined under the auspices of the University and he could see no reason why the drugless healers should not conform to a university standard. He suggested that the drugless healers' council and the University officials should get together to agree on a standard for the profession and on the textbooks for the examination.

LILLIAN A. CHASE

Topics of Current Interest

NEUROSIS AND WORK

A discussion on mental hygiene, reported in *The Lancet* of Jan. 5th, brought from Dr. Edward Mapother a comment which emphasizes the existence of diametrically opposed modes of treatment of the neurotic or the neuropath. Is he to be shielded from stress and have his life made easy for him, or is he to be taught the doctrine of courage and made to struggle against the risk of breakdown? Dr. Mapother upholds the second alternative, and notes with undoubted truth that much of the best work of the world is done by potential neuropaths putting up a great fight against the risk of a breakdown. Pierre Janet, who still stands unrivalled as a clinical observer, is less hopeful, and with many patients

adopts the attitude that their *tension psychologique*—or vital urge, as we might call it—is so low that their life task must be adjusted to it. Yet another aspect is to be found in Sir John Gilmour's address at the Annual Congress in St. Andrews of the Scottish Education Institute, when he warned students against the danger of breakdown from educational over-pressure, and made the shrewd observation that girls do not always succeed in treating the demands of learning with the philosophic calm which boys are able to command. His theme has been given popular expression in the saying, "If you give a girl too much to do she'll break down; if you give a boy too much to do he won't do it." Often enough the clinician, dealing with adult breakdowns

ascribed to overwork, is told that the overwork was unnecessary, that the patient drove himself harder than he needed; in short, that he overworked because he was neurotic. Janet made a group for such cases, giving them the title of *les scrupuleux*, and it is not sufficiently recognized that many nervous people are over-scrupulous, over-critical of themselves, and a prey to a restless urge to perfection that can never be reached. In the same person these qualities can lead to brilliant and original work or serious breakdown, or both. The symptoms often fall into the category of obsessional states, and Miss May Smith and Dr. Millais Culpin, working for the Industrial Fatigue Research Board, have made the observation that these subjects produce results on the MacDougall-Schuster dotting-machine that cannot be approached by any subjects free from nervous symptoms. It is neurotics of this type whose life is too often ruled by the proverb that what is worth doing is worth doing well. For them such counsel is pernicious; they rarely need urging to further exertion, and require rather advice on saving themselves from those introspective criticisms and doubts which, when exaggerated, form the pattern of their nervous breakdowns.

The position of the sufferer from pathological anxiety is different. Though it must not be supposed that there is a clear diagnostic line between the two types, certain distinguishing features may be recognized. The people described above may suffer acutely from anxiety in certain situations—as when alone or in a crowd, or on a height, according to their individual phobia—but usually have no bodily symptoms, not even a rapid pulse, except when they are actually struggling against an obsession. The patient with anxiety neurosis, on the other hand, will often exhibit physical symptoms ranging from palpitation and sweating, to indigestion and headache, and has nearly always a rapid pulse. The latter type, whose anxiety is unfitting to the circumstances and arises from sources in his unconsciousness, must often, in the absence of facilities for psychological treatment, be counselled to admit the existence of his troubles and carry on his work in life with such extra effort as would be necessary with a physical disability. The research workers mentioned above have distinguished between neurotic symptoms and neurotic disability, for in some manual occupations people were found doing good work without nervous breakdown, in spite of the presence of severe anxiety symptoms. It must, however, be emphasized that the symptoms remained; nothing in the work stimulated them, but we may suppose that a less fortunate choice of occupation would have resulted in disability. A great amount of sickness results from anxiety states or physical conditions arising out of them, and it is only by a close study of each case that one can strike the right balance between allowing the patient to give way too readily and failing

to recognize when his symptoms make work impossible. A pitfall always to be avoided is the easy assumption that hard work *per se* can cause nervous breakdown, an assumption contrary to all modern psycho-pathology. Worry often arises from causes within the patient rather than from external working conditions, and it is a human failing to turn aside from the consideration of inner troubles if something external can serve as a scapegoat. Neurotic symptoms are a sign of disharmony, of mal-adjustment to the demands of life, and if external stress exacerbates them, they may serve as a means of escape from that stress; they are, nevertheless, real to the sufferer, as real as any more obvious physical disorder, and to deny this reality is an elementary error that deprives the one who makes it of any influence he might otherwise possess. To understand the reality is to go far towards attaining that co-operation with the patient which will enable us to give him courage to bear the stress of life or to make such reasonable concessions and adjustments as his emotional difficulties require.—*The Lancet*, 1: 138, Jan. 19, 1929.

ON PERCUSSION

"We must not explore the chest by percussing our ideas into it. We must rather give our attention to what comes out."

This is the essential piece of advice conveyed in a recent paper on percussion by Prof. Friedrich von Müller. Opening with a firm insistence that percussion is a fundamental art of medicine never to be superseded, he closes with an exhortation to honesty of purpose in percussion and the maintenance of an open mind. Most of the paper is concerned with experimental work on the analysis and measurement of the note on percussion in various conditions, and ingenious sound-recording instruments are described. On experimental grounds Müller recommends that the fingers alone be used in the examination of the chest, but a small rubber hammer in percussion of the abdomen. He finds that a belt of lung 5 cm. in thickness will yield a normal note on percussion, no matter what it covers. In other words, a gross organic lesion in the lung is inaccessible to percussion provided it is covered by lung 5 cm. deep. The normal lung note in man has a frequency of vibration of about 120. It has no characteristic tone or dominant note, but is rather a mixture of various tones, and is therefore correctly spoken of as a "noise." Minor matters in the paper include a demonstration that the damping effect of fluid in the chest is largely due to the impediment to wall vibration and mobility which the fluid causes by its presence. There is also experimental demonstration of the great effect of the thickness and tension of the chest wall on the resonance of the note. Müller thinks that much of the paravertebral dull note usually ascribed to mediastinal

glands is really due to the trapezius. In an interesting review of the history of the art of percussion he mentions the work of Auenbrugger, Skoda, Weil, and particularly Felix Hoppe. He retains the original nomenclature of this last observer and speaks of "pitch" as meaning the frequency of the vibrations per second; "intensity," the loudness; "period," the number of vibrations elicited by a definite impulse; and "timbre," the purity of the tone.—*The Lancet*, 2: 1199, Dec. 8, 1928.

BIRTH CONTROL CLINICS

The North Kensington Women's Welfare Centre gives advice on birth control to women unable to afford the fees of a private medical practitioner. The fourth annual report just published gives a record of work for the year ending July 31st, 1928, during which period 1,183 visits have been paid by patients to the centre at 12 Telford Road, Ladbroke Grove, W. 10. The policy of this organization is to discourage women from using contraceptives until they have had at least one baby, and to suggest the advisability of having more than one. A medical supplement gives a useful account of the experience of the centre as to the relative efficiency of various contraceptive devices. In the preface to the annual report of the Society for the Provision of Birth Control Clinics (153a, East Street, London, S.E.17) the fact is emphasized that in the distressed mining areas the infant population is still growing almost as rapidly as in times of prosperity. "There is no visible outlook in life for these children, and both husband and wife would be relieved of a heavy load of anxiety if they were taught sound methods of avoiding unwanted conceptions." This society, which now works through twelve centres in London, the provinces, and Scotland, aims at giving such instruction, and a noteworthy aspect of its work is the establishment of a clinic in a Midland mining area. The report observes further that many miners' wives attend the Glasgow clinic. During the year 3,914 new cases have been dealt with by the various clinics, 1,377 by the society's pioneer centre at Walworth, and there have been in addition 7,606 return visits (3,250 at Walworth). A recent analysis of the first 5,000 cases on the books at Walworth has revealed some matters of special interest. Of these 5,000 women, 315 were found to be pregnant on the first visit, and have not returned; 18 sought advice for sterility; and 32, of whom to date 31 have attained their wish, discontinued using contraceptives so as to have a baby. Many years must elapse, however, before any definite conclusions can be drawn as to the effect of the practice of conception control on the incidence of child-bearing among a given set of patients.—*Brit. M. J.*, 2: 76, 1929.

MEDICAL ADVICE BY WIRELESS

"A world hardened to the magic of the scientists has come to take for granted the ingenious purposes to which the discovery of the means of wireless communication may be put. The use of wireless for the saving of life at sea has become a commonplace. The ship in danger sends out an "S.O.S." and others go full steam to the rescue. The navigator is warned well in advance of coming treacheries of the weather and he can take his precautions. No one marvels any longer at such everyday matters. Many a sea captain was able to keep his ship out of the track of the great hurricane that swept over the West Indies a few months ago with as little sense of wonder as the motorist who avoids collisions by obeying the signals of the policeman in Piccadilly. And the landsman regards the hurrying of ships to another in distress as no more remarkable than the dash of the fire brigade to a burning house when summoned by telephone. But recently the aid upon which the seaman may count has been extended in a way that has enough dramatic quality to stir a little even the most jaded devotee of wireless. There is always drama in the fight of the individual for life, and it is to the stricken individual that the wireless can now bring help. The sick or injured member of the crew of a ship need no longer die before the eyes of his helpless captain for want of skilled advice. The master can hail the nearest ship big enough to carry a doctor, explain the symptoms of his patient, and get instruction that will enable him to save, or make an attempt to save, a life.

This kind of aid has not yet been organized; the scheme for giving medical advice across the sea is still in the test stage; but undoubtedly it will develop. Already promising experiments for the drafting of an international code have been made by the Cunard and the White Star companies and by the Belgian authorities, who have presented most encouraging reports to the official conference just held at Antwerp. Clearly attempts to describe the sufferings of one of his crew by a captain unversed in medical phraseology might give little help in diagnosis to the doctor in another ship. The tale of symptoms might incline to a seamanlike but not always illuminating brevity. With his code to guide him the captain could explain himself better and more quickly and the doctor could advise more exactly. At present the ship's captain who finds himself with a man gravely ill on his hands can, in case of great emergency, ask a liner to stop and send a doctor across in a boat; but the extremity would have to be very great to induce the master of a humble vessel to divert and delay a big ship carrying mails, the patient would probably not get the benefit of the doubt. The code, when it can be made general, will save the master—and the patient—from doubts that may have fatal consequences. Experience will show how best the precise information that doctors require can be elicited and how best the precise instruction

necessary for treatment can be conveyed in reply; and when the code has finally emerged it will doubtless be at the service of the pioneer in remote parts of the Empire. The aeroplane has saved more than one man from death in the wilder parts of the Canadian North by bringing medical aid; in Australia it has done equally valuable work; the Inland Mission of the Presbyterian Church, for example, has an aeroplane at its disposal at Cloncurry, Queensland, for the conveyance of the mission's doctor to isolated settlers. Aeroplanes and doctors can be summoned by wireless, but a medical code would be invaluable where there are no aeroplanes and no doctor available. The most laborious computator could hardly estimate the number of lives that wireless has already saved; an international code for medical service will lessen one of the worst dangers of the sea and the far solitary places and add to the humanitarian debt the world owes to the invention of wireless."—*The Weekly Times*, Jan 24th, 1929.

NITROUS OXIDE AS A SUPPORTER OF COMBUSTION

"The power of nitrous oxide to support combustion is often ignored, if indeed it is known at all. A suggestion was recently made for instance, that the gas might on emergency be used instead of compressed air to avoid the possible risk of concentrated oxygen when liquid paraffin is employed for lubrication. Yet the fact is that nitrous oxide contains double the proportion of oxygen present in atmospheric air and in a form which is readily available for combustion. The idea seems still to survive that nitrous oxide is inert, much in the sense that nitrogen itself is inert, although Hewitt states in his text-book, "When a burning body is placed in the gas the latter is decomposed and combustion is supported." The risk may be put a little more strongly than that. Prof. H. H. Dixon has shown that in some combinations nitrous oxide helps to form an explosive mixture more readily than does oxygen itself. Testing ethylene and propylene mixed with air, oxygen, or nitrous oxide, Dixon found that the ignition points were actually lower with nitrous oxide than with oxygen. Nowadays when mixtures of ether or ethylene with nitrous oxide are so frequently employed for general anaesthesia, it should not be forgotten how readily nitrous oxide provides material for explosion under favourable conditions of temperature and pressure."

REACTION TO INSECT BITES

The current number of the *University Hospital Magazine* (13: 200, 1928.) contains an account of some interesting experiments made by Prof. A. E. Boycott which go to show that the ordinary irritable wheal which often follows the bites of midges, mosquitoes, and other insects is an anaphylactic or allergic phenomenon. Persons show no reaction the first time they are bitten by any species of insect, but subsequent bitings may sensitise them and they then respond in the familiar way. They are presumably sensitised to the protein which the insect injects with its saliva. Decisive experiments are obviously hard to make with our native midges, etc., since no one knows exactly what has bitten him in the past. The present experiments were made with the small sandfly *Phlebotomus papatasi*, bred at the London School of Hygiene and Tropical Medicine by Dr. P. A. Buxton, from larvae sent from Jerusalem by Dr. Oskar Theodor. This insect occurs all round the Mediterranean but does not come nearer England than the neighbourhood of Paris; it may, therefore, be presumed that people who have stayed at home in this country have never been bitten by it. Using throughout the same batch of flies, Prof. Boycott found that four such people gave no reaction at all to their first bitings; in another individual who had been freely exposed to *Phlebotomus* in the East ten years ago, the first application of the insects was followed by immediate wheals. Of the four negatives, one was doubtfully positive as being bitten for the second time two days after the first biting, and gave a violent reaction to the third biting, which was inflicted seven days after the first; one gave a large reaction to the second biting on the tenth day; one was negative on the seventh day and positive on the twelfth day; one was negative on the third and seventh days and strongly positive on the thirteenth and nineteenth days. All four therefore became sensitive and gave typical reactions which with *Phlebotomus* are hard wheals, very irritable and lasting as long as a fortnight. From these few experiments it seems likely that the period which must elapse after the first biting before the subject becomes sensitive is about 7 to 10 days—an interval which is quite in accord with an anaphylactic interpretation. It was also noticed that first bites might remain quiescent and invisible for 10 days and then flare out into violent wheals when a second biting was imposed on another part of the body—a pretty illustration of an intense sensitisation due presumably to the local accumulation of antibody.—*The Lancet*, 2: 1253, Dec. 15, 1928.

Abstracts from Current Literature

MEDICINE

The Etiology of Peptic Ulcer. Morton, C. B.,
Am. J. M. Sc. 177: 65, 1929.

Dr. Morton reports the finding of considerable amounts of free hydrochloric acid in the duodenal contents of patients suffering from peptic ulcer, whereas a series of controls showed none. He cites his own experimental investigations carried out on dogs, in which he was able to show that the production of gastric or duodenal ulceration in these animals was primarily dependent upon trauma. The ulcers had the appearance and position of those found in human cases. Their site was determined by the point at which the forces exerted by the stomach converged in ejecting the acid chyme. "Healing of the ulcers ensued when measures were taken to introduce alkali into the region of the ulcer, or when the forces of the acid ejections of the stomach were diffused or counteracted."

In the present communication the author has continued his investigations on the human. The methods of investigation was to examine the gastric and duodenal contents simultaneously by means of two Rehfuß tubes, one in the stomach and the other in the duodenum, after the administration of an Ewald test meal. The patients chosen were of two classes, namely, patients with clinical and skiagraphic evidence of ulcer, and a small series of controls. In the control series, the duodenal contents were found to contain a moderate amount of total acid but no free hydrochloric acid was present, whereas in those with ulcer, free hydrochloric acid was invariably present. The author believes that this free hydrochloric acid in the duodenum prevents the healing of small abrasions and thereby favours the production of chronic ulcers. He speculates as to why free hydrochloric acid should be found in the duodenum. Of three possible factors, hypersecretion of acid, hyposecretion of alkali, or improper functioning of the pylorus, he favours the latter. Normally, duodenal contents are constantly regurgitating into the stomach thus neutralizing the free hydrochloric acid before it reaches the duodenum. When spasm of the pylorus is present (as in achalasia or ulcer) a large amount of acid chyme is thrown into the duodenum, with consequent faulty neutralization. Healing of the ulcer is brought about by reducing the acidity in the stomach.

E. S. MILLS

The Diagnosis of Gastric and Duodenal Ulcer.

Miller, T. G., Pendergrass, E. P., and Andrews, K. S., *Am. J. M. Sc.* 177: 15, 1929.

These authors have analyzed the records of 279 patients with gastric or duodenal ulcer con-

firmed by operation. The ulcer occurred in the stomach in 58 cases only. Ninety per cent of the gastric ulcers and 85 per cent of the duodenal ulcers were in men. Three-fourths of the gastric and half of the duodenal group were forty years of age or over on admission. As regards pain, nearly all cases of duodenal ulcer complained of epigastric pain described as sharp or severe in 46 per cent, while the incidence of this symptom in the gastric group was 78 per cent. The majority of the gastric cases had pain one to two hours after food, and, as would be expected, the time interval in the duodenal group was longer. It is of interest that the pain in almost one-third of the gastric series bore no relation to the taking of food. Nausea, vomiting, and eructations were common symptoms in both groups. Hematemesis was twice as common in the gastric as in the duodenal cases. Perforation occurred in 11 of the gastric group (19 per cent), and in 31 of the duodenal (14 per cent).

A definite spot of epigastric tenderness was noted in 57 per cent of the gastric and in 38 per cent of the duodenal cases. The skiagraphic diagnosis was correct in 88 per cent of the duodenal and 94 per cent of the gastric series.

E. S. MILLS

Late Results of Surgical Treatment of Peptic Ulcer. Fremont-Smith, M., and McIver, M.,
Am. J. M. Sc. 177: 33, 1929.

These authors have attempted to follow up cases of peptic ulcer treated surgically at the Massachusetts General Hospital. Some 678 cases, of which 393 were duodenal, 261 gastric, and 24 combined, were traced. One hundred and fifty responded in person to a circular letter; 165 were communicated with by mail; and 42 were visited at their homes. In 115 instances data were obtained from hospital records. In this way the authors were able to collect information on 472 cases. They classified the cases into three groups, "A," "B," and "C," according to whether they were well on an unrestricted diet, had mild recurrences of symptoms controlled by restricting diet, or were not appreciably improved.

The great majority of the operations consisted either of gastro-enterostomy alone or of this operation combined with infolding or excision of the ulcer. A total of 56 deaths occurred as a direct result of the operation. Two hundred and eighty cases of duodenal ulcer were traced from two to ten years after operation and analysis showed that 70, 61, 40, 28, and 19 per cent, were in group "A" at 2, 4, 6, 8, and 10 years after operation, respectively. In the gastric group, consisting of 159 cases, 73, 66,

47, 32, and 22 per cent were in group "A" at the same periods of time. Of the remaining cases traced, approximately half were in group "B" and the other half in group "C."

Forty-nine cases were operated upon more than once, and of these gastro-jejunal ulcer was found in 14 instances. When the latter was present the operative results were uniformly poor.

The results of operation in the duodenal ulcer group were better in the cases that showed evidence of gastric stasis prior to operation. The authors do not attribute this to obstruction of the pylorus, but to the type of ulcer which produces obstruction—the large indurated lesion—which in their experience is the most favourable type for operation. Removal of the appendix did not seem to lessen the recurrence of ulcer symptoms.

E. S. MILLS

Abdominal Aneurysm Causing Thrombosis of the Inferior Vena Cava. Fooks, K. P., *Brit. M. J.* 1: 97, Jan. 19, 1929.

This case presented several unusual features, making the diagnosis extremely difficult until the final fatal catastrophe. The patient was an engineer, aged 35, who had been under observation off and on since the age of 12, when he was treated for iritis, apparently traumatic in origin. Two years later he was in hospital with swelling of the legs, which gave rise to ulceration. During the ensuing six years he had several transient recurrences of œdema, but no pain, until intermittent claudication developed, and this persisted to some extent for the rest of his life. In 1920, large veins appeared over the abdomen, and, later, severe aching pains in the lower part of his back, with tenderness over the lower spines and a bilateral extensor plantar response. The Wassermann reaction was negative.

At this stage thrombosis of the inferior vena cava was diagnosed, the myelitis being thought to be secondary to impaired local blood supply. The pain disappeared under electrical treatment and he returned to work.

Four weeks before his final admission he had an attack of very severe abdominal pain, followed later by a swelling in the left groin and numbness and weakness of the left leg. Violent nocturnal stabbing pains were present. Examination showed large tortuous veins coursing over the abdomen from the groins to the sub-sternal notch and axillæ, the blood flow in every case being upward. A diffuse, solid, tender swelling occupied the left groin. No pulsation was detectable in the arteries of the legs except a feeble intermittent pulse in the left posterior tibial. There was no œdema of the legs. The blood pressure (radial) was 160/106. The abdomen was uniformly distended and tympanitic.

The pain in the left leg became more frequent and of an agonizing nature. An x-ray examination of the abdomen, taken when the swelling in the groin had increased from the costal margin to the iliac crest, and was manifesting expansile pulsation, showed no sign of abdominal aneurism, but a lateral view was impossible. The abdominal swelling steadily increased and death finally occurred a week after admission.

The necropsy showed a large saccular aneurysm at the bifurcation of the aorta, eroding the bodies of the fourth and fifth lumbar vertebrae to within half an inch of the canal. On the left side the wall had broken down, allowing the formation of an immense hæmatoma. The inferior vena cava had become a fibrous band, stretched out over the sac. The femoral and iliac veins were also fibrous cords, but had been partly recanalized by small vessels running outwards near the bifurcation of the aorta, apparently into the lumbar veins. The femoral arteries were patent, but some clot was partly blocking the openings from the aneurysm. The heart was normal, and no atheroma was found in the aorta. The other organs were healthy, and there were no signs of syphilitic infection.

The etiology was not clear. With the possible exception of the iritis, there was no evidence of syphilis, but the author considers this to be the probable cause. The onset before the age of twenty implies a congenital origin, although no stigmata of congenital syphilis were found. Attention is drawn to the absence of lumbar pain except for two short periods, which was remarkable in view of the degree of bone-involvement.

H. E. MACDERMOT

Dyspepsia Due to Gall-Bladder Disease. Dowling, G. A., *J. Am. M. Ass.* 92: 7, Jan. 5, 1929.

The author comments on the ebb and flow of medical interest in appendicitis and asserts that insufficient attention is given to gall-bladder disease, considering the large number of cases that occur. In his opinion this condition should occupy first place as a cause of dyspepsia, and he considers dyspepsia the chief and most frequent indication that there is trouble in the gall-bladder region, pain occurring in only half as many cases.

Thus gas distension, belching, inability to eat certain foods, sour stomach, heart-burn, acid eructations, bilious attacks, nausea, vomiting, dizziness, headaches, constipation (in this order) are associated. Starvation gives more relief than taking food. These symptoms, with more or less severe pain or jaundice, and a negative gastric x-ray report almost clinch the diagnosis.

What causes the dyspepsia? Apparently, pylorospasm or severe peristalsis; or anything preventing the discharge of a concentrated bile into the duodenum at the moment of discharge

of chyme from the pylorus; inefficient neutralization of the chyme, under production of gastric acids which is often the case in this disease. Also, any inflammation will make the nearby portions of the digestive tract more sensitive. Many authorities state that hyperacidity is never found in gall-bladder disease. The x-ray has helped enormously, though Dr. Dowling does not consider a negative x-ray report a proof of no trouble in this area.

The history of symptoms in the series studied by Dr. Dowling gives an average of 7 years to pain and 10 years to dyspepsia. Seven patients had diabetes and there were numerous other concomitant abdominal conditions. Operative treatment has been applied in 25 per cent of his cases, an equal number refusing it although advised to have it. Surgical treatment is urged on those who have associated lesions of intestinal tract and on those who have diabetes, so as to conserve the involved pancreas.

Patients are advised to take small meals, and to avoid roughage in the shape of raw fruits and tough meats, also fats, pastries, greasy gravies, condiments and alcohol.

P. M. MACDONNELL

Ueber Eine Neue Einfache Herzmuskelfunktionsprüfung, Besonders Zur Erkennung Der Anfangstadien Von Herzmuskelschwäche. (A New Simple Test for the Function of the Heart Muscle, especially for the early recognition of impending Heart Failure). Bottner, A., *Klinische Wochenschr.* 7: 1911, Sept. 30, 1928.

The test consists in first applying the so-called "water and thirst test" of Volhard to the patients while they are kept in bed. Then the test is repeated when they are allowed to be up and move about. In the case of patients in whom the functional power of the cardiac muscle is good, there is no appreciable difference in the amount of fluid eliminated, whether they are kept in bed or not.

On the other hand, when the heart function is weakened, the elimination of fluid is considerably inhibited under conditions of exercise. Bottner thinks that here we have a measure of the degree of the cardiac weakness.

A. G. NICHOLLS

Myofibrositis as a Simulation of Other Maladies. Murray, G. R., *Lancet* 1: 113, Jan. 19, 1929.

The author deplors the lack of space devoted to inflammatory conditions of muscles and nerves in standard text-books, and points to their importance as a cause of pain. This pain is caused by inflammatory irritation of the sensory nerve endings and is always increased by the added tension during muscular contraction.

Pectoral and intercostal myofibrositis may very closely imitate the angina pectoris syndrome

unless a careful history reveals that walking and other exercise not involving the thoracic muscles does not bring on the pain and that emotional upsets never produce the attack. A tender point of inflamed muscle which increases in sensitiveness with contraction should be diligently sought. There is no sense of impending death. In fibrositis of the abdominal muscles, intra-abdominal inflammation can be differentiated by this increase of tenderness with muscular tension and the disappearance of discomfort when the wall is relaxed. Headache due to fibrositis of the occipito-frontalis aponeurosis is a more difficult problem but this should be investigated among other factors.

The importance of absolute rest to the affected part is stressed, together with protection from exposure, and the application of heat and local medicaments.

J. B. ROSS

Segmental Hyperalgesia Associated with Hæmoptysis. McLaughlin, A. J. G., *Lancet* 1: 116, Jan. 19, 1929.

A previously unrecorded observation is made of the association of cutaneous hyperalgesia of the segmental type with hæmoptysis in cases of pulmonary tuberculosis. This is not to be confused with local hyperalgesia and deep tenderness over areas of acute and subacute pleurisy. The areas described are sharply outlined and occupy definite regions on the anterior and posterior chest surfaces, agreeing as to level and side of the body with the pulmonary lesions. Apical lesions connect with the third, fourth, and fifth dorsal segments, while basal hæmoptysis affects the fifth, sixth and seventh nerve divisions. The exact position on anterior and posterior aspects is described and is said to be constant. Other constant features are the duration of the hyperalgesia, approximately fourteen days, and the disappearance of the posterior area a few days prior to the anterior.

Hæmoptysis from pulmonary cavitation does not produce these areas, the assumption being that the endings of afferent nerves have been destroyed during the tissue necrosis. Occasional similar areas on the scalp and upper cervical regions are due to irritation of the phrenic nerve branches in lesions of the extreme apex. The site of this segmental cutaneous phenomenon does not coincide with tender areas in cases of endocarditis and the observation has never been made in hæmoptysis from cardiac or other circulatory congestive causes.

J. B. ROSS

Di un nuova segno palpebrale del Basedow. (On a new palpebral sign in exophthalmic goitre.) Galata, G., *Il Policlinico* 35: 1438, 1928.

To the many well-known signs connected with

the eyelids in exophthalmic goitre, as those of Dalrymple, Gifford, Stellwag, v. Graefe, Boston, Kocher, and Rosenbach, Professor Galata adds one more. This is the incomplete closing of the eyelids during sleep without the co-existence of exophthalmos. The sign is found exclusively in conditions of hyperthyroidism, and may be the only palpebral sign in the early and abortive forms of Graves' disease. It is due to a state of hypertonus of the palpebral muscles.

A. G. NICHOLLS

SURGERY

Malignancies of the Colon. Erdmann, J. F., and Clark, H., *Ann. Surg.* 89: 54, Jan. 1929.

The rapidity of the growth of carcinoma of the colon is influenced, as is the case with cancer in other parts of the body, by the age of the patient and the type of cell. From the viewpoint of regional classifications, the symptoms should vary somewhat, but in the main they are subject to slight variation. Growths involving the cæcum and ileo-cæcal regions rarely obstruct, owing to the liquid state of the contents. The higher or more proximal the growth is in the colon, the more is profound anæmia in evidence.

The evidence given by palpation in the case of cæcal and ascending colonic growths is apt to be late, as is also x-ray evidence, while in the sigmoid zone x-ray examination is apt to give earlier evidence, owing to the presence of annular growths in the sigmoid as compared with lateral or mural growths in the cæcum. When the growths become obstructive, patients commonly complain of pain at the site of the cæcum and appendix, and the surgeon must be on his guard because a diagnosis of appendicitis has been made and the patient operated upon when the pain was entirely due to dilatation of the cæcum, the cause of the obstruction being farther along the bowel. The author does not lay stress on alternating diarrhoea and constipation, because by the time these occur the diagnosis is otherwise evidenced. The onset of obstruction is influenced, not only by the constriction of the carcinoma but also by the consistency of the bowel contents. In cases of obstruction, partial or complete, a metallic tinkle is heard with the ear over the cæcal region when the opposite side is sharply pushed towards the median line. This is an infallible sign of obstruction and is also present in post-operative obstructions.

No patient who has pain in the lower back, perineal or sciatic in distribution, who complains of distressing flatulence, tenesmus, or blood or mucus in the stool, should be left without proctoscopic examination. No patient with abdominal colic or distress along the colonic flexures, and especially if that patient is losing weight, should be dismissed from observation without a careful

series of x-ray plates being taken, and it is always advisable, if one suspects malignancy, to have a barium enema given before a gastro-intestinal series because the author has seen several cases of acute obstruction develop following a gastro-intestinal series. Before operation is attempted thorough intestinal cleaning should be done, when possible, by cathartics, intestinal antiseptics, and colonic irrigations. Preliminary operation should consist of a cæcostomy if the lesion is distal to the mid-transverse colon.

The author does not favour the establishment of a permanent artificial anus as a routine procedure, and limits its use to those patients in whom the growth is so firmly fixed to surrounding structures that removal would end disastrously, or to patients in whom the contiguous and remote metastases are so extensive as to indicate an early death; but, even though there are metastases in the liver, a radical resection with anastomosis is favoured, thereby relieving the patient of the disagreeable association of an artificial anus.

In patients with a permanent artificial anus two methods of procedure are to be followed. In the first instance the growth is allowed to remain, while in the second the growth is removed with all the surrounding tissue. If a growth in the lowest segment is removable, the lower portion is liberated from the sacral groove; then a perineal approach is made to remove this portion, the whole segment with the growth being delivered through the perineal incision.

Operation on the lower segment is readily done through the perineum, with or without removal of the coccyx. One can readily pull down, by careful dissection, six to twelve inches and implant the cut end in the perineum. The author is inclined to give this operation first place in all lower growths. He does not feel that the extensive operation of Miles is called for, particularly after analyzing his immediate mortality. In doing end-to-end anastomosis the first essentials are the preservation of the muscular and mucous membrane circulation, the exclusion of all fat-lobules, and the accurate approximation of the muscular and mucous coats, and, while it is admitted that a complete circle of peritoneum is an advantage for prompt union, yet it is not essential in permanent repair.

R. V. B. SHIES

Some Problems in Gastric Surgery. Moynihan, Sir B., *Brit. M. J.* 2: Dec. 8, 1928.

The author deals particularly with the operative problems of gastric and duodenal ulcer. In short, it may be said that the contribution affords an indication for the operation of gastro-enterostomy properly performed and used in cases which have been properly selected. In order to have a careful examination and preparation of the patient in respect of blood condition,

teeth, sinuses, etc., so that it may be performed at the time the patient is most adequately prepared to undergo the ordeal. At the operating table the ulcer should be seen, felt, and shown.

The conclusions arrived at regarding the present status of gastric surgery are as follows: Ulcers of the stomach or duodenum do heal, and remain soundly healed for years. When healed, stenosis in the body of the stomach or in the duodenum may result, and surgical treatment for a mechanical deformity may then be necessary. Medical treatment should always be given a first and a second trial; if it then fails success in later efforts is extremely improbable.

The present methods of medical treatment are proved by experience to be of little value, and are highly dangerous. The majority of patients who die from either of these diseases succumb because medical treatment has failed to relieve them. Medical treatment undoubtedly has a mortality greatly exceeding the highest mortality following any surgical procedure adopted for chronic ulcers of the stomach or duodenum. The failure of medical treatment is largely due to its insufficiency. To be successful such treatment must be rigorous and protracted. The loyal co-operation of the patient is essential. Very few patients now receive any treatment offering a reasonable prospect of healing of the ulcer. When medical treatment has failed surgical treatment must be adopted, and should not be delayed. Experience shows that surgical treatment, adopted when medical treatment has failed, is far less dangerous and far more effective in attaining our object than medical treatment; the immediate and remote mortalities are smaller, the after-effects far more satisfactory. The failures of operative treatment by competent surgeons are due chiefly to the development of fresh ulceration at the new anastomosis. The causes of this new ulceration lie partly in the diathesis of the patient, and partly in the details of the operation.

Surgical treatment should consist in the eradication of the ulcer or ulcers; by gastrectomy if the ulcer lies in the stomach; by a short-circuiting operation, combined with destruction of the ulcer, when it lies in the duodenum. Balfour's method and Walton's method have proved excellent in the hands of their authors. Other complementary procedures within the abdomen must be observed. Gastrectomy in the treatment of duodenal ulcer is more dangerous than gastro-enterostomy, and does not appear to give any better late results, if indeed its results are so good. It should, therefore, have no place among surgical methods for the treatment of duodenal ulcer at the present time. The medical treatment of gastric ulcer and of duodenal ulcer is perhaps not so much a medical problem as a problem in social economics. Rest in bed, freedom from anxieties, abstinence from work, com-

plete repose, in fact, are essential if treatment is to have the best chance of success. A counsel of almost unattainable perfection!

The connection between gastric cancer and gastric ulcer is so clear that gastrectomy alone, wherever it is practicable, should be regarded as the appropriate surgical treatment for chronic incoercible gastric ulcer. On the patient's return home he should be instructed regarding care in diet; abstinence from tobacco, alcohol, and salt; the administration of triple carbonates; and the importance of rest and warmth for a few months at least.

R. V. B. SHIER

GYNÆCOLOGY AND OBSTETRICS

Vaginal Discharge due to *Trichomonas Vaginalis*. Greenhill, J. P., *Am. J. Obs. & Gyn.* 16: 870, Dec. 1928.

Persistent vaginal discharge is often due to a parasitic flagellated organism, known as the *Trichomonas vaginalis*. The organism, which is best seen in a hanging-drop preparation, is a little larger than a leucocyte, rounded at one end, with four flagella protruding from one end.

Patients complain of a profuse discharge, often associated with a burning itching sensation in the vagina and vulva. Clinically, the vagina is filled with a greenish-yellow foamy pus which looks like gonorrhœal pus; the mucosa of the vagina and cervix is very red, and sometimes bleeds, even though there is no erosion. No inflammatory condition is, however, found above the external os.

The treatment which the author has found most effective is that of washing the vagina and vulva thoroughly with green soap, then wiping them dry and applying methylene blue. This treatment is repeated every second day for three or more times. On the mornings between treatments the patients take a one-half per cent lactic acid douche. 89.6 per cent were cured after one or more series of these treatments.

ELEANOR PERCIVAL

Diabetes Mellitus and Pregnancy. Walker, A., *J. Obst. & Gyn. Brit. Emp.* 35: 271, 1928.

Before the discovery of insulin the prognosis in cases of pregnancy complicated by diabetes was very poor. Fortunately, diabetics rarely become pregnant; Parisot, in 1911, estimated that 50 per cent of them were sterile. Dr. Williams, in his well-known paper, found that among sixty-six diabetic pregnant women the mortality during pregnancy, labour and the puerperium was 27 per cent, and that another 25 per cent, died within the two years following the confinement.

The author reports nineteen cases occurring since the discovery of insulin. Thirteen of these patients had diabetes before they became preg-

nant, while in three sugar was first discovered during the pregnancy. All the cases were treated with insulin. The maternal mortality in this series was 10.5 per cent; the foetal mortality shows 9 per cent miscarried and 18 per cent stillbirths. Hence the advent of insulin has considerably altered the outlook for the diabetic pregnant mother, and although still a serious complication does not call for therapeutic abortion.

ELEANOR PERCIVAL

THERAPEUTICS

The Therapeutic Use of Bacteriophage in Suppurative Conditions. Rice, T. B., and Harvey, V. K., *J. Lab. & Clin. Med.* 14: 1, Oct. 1928.

This is a study of fifty cases of suppuration treated by bacteriophage. The various investigators are not in accord as to the therapeutic value of this agent. The authors think that the failures that have been reported by certain other workers are possibly, to be explained on the ground of their use of inactive strains of bacteriophage. They themselves used a strain which, for the most part, was isolated from mixed sewage and then "trained" to specific activity by being grown with the particular organism against which lytic action was desired. The affections treated were chiefly boils, abscesses, ulcers, and acne. Their cases are reported in detail, and some remarkable results were obtained. Pain was often quickly relieved, inflammation subsided, and healing took place quickly. Some of the cases in which success was obtained had resisted all other forms of treatment.

The conclusions of the authors are:

1. Bacteriophage filtrates, active for autogenous cultures, have been used in a series of fifty suppurative conditions and have been found to be highly effective against *Staph. aureus* and *Albus*, *B. coli*, and *B. pyocyaneus*.

2. They have been found most effective when used as a wet dressing or when instilled into a cavity.

3. There is considerable evidence that stock cultures of the bacteriophage may be used with profit when there is not time or facility for the preparation of the autogenous product, or while it is in preparation. This is particularly true of the staphylococcus preparations.

4. Those who have seen the results in actual cases are invariably enthusiastic and are convinced that the method has much merit. At least it offers promise and should be thoroughly investigated.

The use of bacteriophage in certain kinds of infection, then, seems to be of value and is worthy of further study. Especially should its use be considered in inveterate and almost hopeless conditions of suppuration. Reports of all

cases in which bacteriophage has been used should be published, no matter what the result may have been, in order to establish a true estimate of its therapeutic value.

A. G. NICHOLLS

PATHOLOGY

The Prevention of Experimental Exudates by The Parathyroid Hormone (Collip). Gold, H., *Arch. Int. Med.* 42: October 1928.

In spite of experimental work indicating that calcium salts are extremely efficacious in inhibiting the formation of exudates, clinical practice by ordinary methods of administration has proved disappointing. As it is difficult to produce a persistent hypercalcaemia by means of calcium salts, experiments were conducted on dogs, using parathyroid hormone, which produces a prolonged increase in the blood calcium content of normal animals. Pleural effusions were produced by introduction of an irritant—copper sulphate solution—in seven controls and nine dogs treated with parathyroid subcutaneously injected. Blood calcium estimations were made.

It was found that in those dogs developing a marked hypercalcaemia there was very different inhibition of pleural effusion as compared to the controls and to the one dog in which the rise of blood calcium was slight. The degree of clinical value of this observation will depend on the reaction of human subjects to the necessary level of hypercalcaemia and the relative intensity of the irritant in clinical cases.

J. B. ROSS

The Effect of Roentgen Rays on the Heart. Warthin, A. S., and Pohle, E. A., *Arch. Int. Med.* 43: 15, January 1929.

These writers have been studying the effects of the roentgen rays on the heart in rats and rabbits. They showed in an earlier paper that a single exposure, corresponding to a so-called human erythema dose of the rays, produces no notable effects on the heart muscle in these animals. They now have studied the effect of repeated doses, such as are given in human beings in the treatment of malignant growths in the region of the heart, carcinoma of the breast, tumours of the lung and the like. They prefer the term "tolerance" to "erythema" as applied to dosage.

Experiments with these repeated doses were carried out in a large number of rats and rabbits, and after three exposures of the precordium the first of which was a full tolerance dose and the other two half of this, the animals were killed and their hearts examined microscopically. In every animal so irradiated definite lesions were found in the myocardium, consisting chiefly of Zenker's necrosis and fatty infiltration. In many cases there were evidences of inflammatory

reaction and repair. These changes were in every case associated with definite and sometimes severe bronchitis and bronchopneumonia, with injury to the thymus and lymph nodes. These changes were regarded as secondary to direct injury to the bronchi which caused a lowered resistance and allowed infection to develop.

The conclusion therefore is that repeated roentgen-ray exposures do cause definite injury to the heart muscle when given in large doses, and great caution should therefore be used in irradiation of the cardiac region.

In the discussion on this paper it was pointed out that results obtained in animals cannot always be applied to human beings. There are great variations of susceptibility to x-rays amongst animals, and even in human beings themselves some are found to be affected by x-rays much more than others. The electrocardiograph has been found of great value in controlling the effects of x-ray dosage, and it was emphasized by one speaker that a massive dose—for carcinoma, say—should never be followed by one of equal strength, even after a long interval.

H. E. MACDERMOT

Obituaries

Frank Hamilton Mewburn. The death of Col. F. Hamilton Mewburn, Professor of Surgery in the University of Alberta, occurred in the University Hospital, Edmonton, on January 29, 1929, after an illness of four days with pneumonia.

Colonel Mewburn belonged to a family with a medical tradition. Surgery, and, whenever opportunity offered, military surgery, attracted the Mewburns.

In 1765, Francis Mewburn commenced the study of medicine and, when Napoleon threatened to invade England Dr. Mewburn was a Captain of Volunteers. His son, John Mewburn, studied under Sir Astley Cooper, attended the wounded at Haslar Hospital after the battle of Corunna, and came to Canada in 1832. During the Mackenzie Rebellion he volunteered for service in the defence of Toronto. His son, Dr. Francis Clarke Mewburn, finished his medical training in Toronto in 1838, and was immediately attached to the Coloured Corps with which he served for two years. In 1866 he served as Surgeon-major to the 44th Regiment (Lincoln and Welland) during the Fenian Raid. He was a close friend of Dr. Frank Hastings Hamilton, who in 1846 became the first Professor of Surgery in the Medical Faculty of the University of Buffalo. Dr. Mewburn received from this institution an honorary degree.

Colonel Frank Hamilton Mewburn, the subject of this sketch, was the youngest son of the above, and was born in the year 1858 at Drummondville, Ontario. He was named after the famous Buffalo surgeon. Graduating from McGill University in 1880, Colonel Mewburn was house-surgeon at the Montreal General Hospital. In 1882 he went to Winnipeg as Superintendent of the Winnipeg General Hospital, where he remained for four years. After serving as Surgeon to the Military Hospital in that city during the Riel Rebellion in 1885, Colonel Mewburn accepted an appointment as Surgeon to the Galt Coal Company at Lethbridge. Here he was appointed Acting Assistant-Surgeon to the R.N.W.M.P.,

and as the city grew established himself in a general surgical practice. For years he made all his visits on horseback, a white Indian pony serving him faithfully

on his rounds. In 1911 he was appointed an Honorary Surgeon to the Mounted Police. He and Dr. E. A. Braithwaite, of Edmonton, were the only two to attain this rank.

Colonel Mewburn moved to Calgary in 1913 and there confined his practice entirely to surgery. At the outbreak of the Great War he enlisted and went overseas in 1915. He had a distinguished record during the war, and at its conclusion received from the hands of His Majesty the Order of the British Empire. Returning to Calgary in 1919, he again engaged in practice.

Because of his outstanding ability as a surgeon Colonel Mewburn was called to the University of Alberta in 1921, and became its first Professor of Surgery. McGill honoured him with an LL.D. in this year, and in 1922 Alberta bestowed upon him a similar honour.

In 1887, Colonel Mewburn married Louise Augusta Nelson. There are three children surviving, Mrs. Beverly

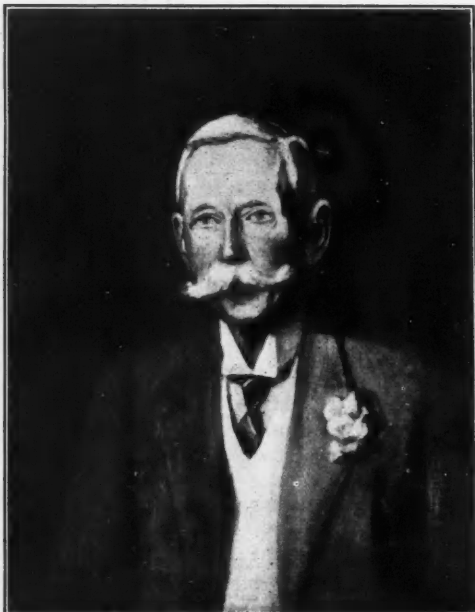
Robinson of Toronto; Mr. Arthur Mewburn; and Dr. Frank Hastings Hamilton Mewburn, orthopaedic surgeon of Edmonton, representing the fifth generation of medical Mewburns. For 164 years the line of surgeons has been unbroken, and for almost 100 years there have been members of the family pioneering in Canada, first in Ontario, then in Manitoba, and finally in Alberta.

The late Colonel Mewburn upheld the best traditions of the profession to which he belonged and his name will be an honoured one in the medical history of Canada.

HEBER C. JAMIESON

APPRECIATIONS

A close association of some years' standing with the late Colonel Mewburn combined with a deep sense of the loss sustained by the University and community in his sudden death determines the writing of these



Colonel F. H. Mewburn

few words of tribute to his memory. In an energetic and self-sacrificing manner, Colonel Mewburn took part in the development of the medical institutions of the University with the same unselfish interest he had always shown in his associations with those who came in contact with him professionally or in public life. A man of wide experience, rare surgical judgment, and a keen student to the last, he taught sound conservative surgery to interested students. He was an example of the highest type of professional life and integrity in harmony with the best traditions of the profession, and his delightful personality will remain one of our most cherished memories. Honoured by the profession and his Alma Mater, respected affectionately by his confrères of the Faculty and University, he contributed wisely to our councils and was an important factor in our progress. We mourn him as a sympathetic associate, as an unselfish friend, and as a modest man of fine outstanding quality.

ALLAN C. RANKIN

Dr. Mewburn's early surgical career was begun and developed amid all the possible disadvantages that were common to country and small-town practice of his day. It is not difficult to determine where he absorbed the incentive to make his work so worthwhile. He is not credited with a brilliant scholastic course at McGill, but his frequent references to Prof. Fenwick would indicate that his teaching had made a deep impression, and association with Shepherd and Osler evidently set a standard for his work in his own mind, perhaps first seen in the embryo Manitoba Medical School, which was projected while he was Superintendent of the original Winnipeg General Hospital in the early eighties. Later on, because a living must be earned, he left the primitive hospital of that day to take over a mine contract and a Mounted Police post in a coal camp, about as far away from congenial spirits as trains could take him. There, without a hospital, until his work compelled the erection of one, he proceeded to develop operative surgery, with a keenness for technique and a daring that inspired instant confidence. His success marks him as belonging to that class which ignores difficulties and lays tribute upon his daily work to produce the material for his own education and training.

He was never satisfied with having "got by," and was ever insistent that his colleagues should reveal to him any details of procedure which their later opportunities had enabled them to learn, but his main source of knowledge were his books and journals and his yearly pilgrimages to the clinics of great surgeons.

It was my privilege, then only looking on, to watch his development from surgery of amputations and abscesses to his first appendectomy in 1893. The patient had travelled 200 miles to have it done and it had evidently ruptured some time before, and everything was in a terrible mess as they nearly all were in those days before early interference was permitted. It is doubtful if the appendix was removed, but the patient got well, and with increasing ease cases were offered for his skill; hernias in plenty, an ectopic gestation, which he reported, until December 10, 1903, came the climax, as he then thought, in a Cesarean section. His progress from that point was continuous.

Dr. Mewburn was certainly a living example of Schwab's dictum "succeed with what you have." As a colleague he was inspiring, and obliged one to give his best and be certain about it, but he made most of those who worked with him very warm friends, as his straightforwardness to friends and foes alike made his friendship highly prized. In the mining camp of forty years ago, the Lethbridge of to-day, his thoroughness is still a tradition.

W. S. GALBRAITH

H. M. Cameron, M.C., B.A., M.D., LL.B. Death came with tragic suddenness to Dr. H. M. Cameron, of Winnipeg, on February 2nd. While motoring home from his office about 9.10 p.m. he had an attack of coronary thrombosis and expired at the wheel of his car in front



Dr. H. M. Cameron

of the United Services Club on Osborne and Whitehall Avenues.

During the day he had been engaged in his duties as chief coroner for the province of Manitoba, a position he assumed in 1924 on the death of Dr. B. J. McConnell. Already a graduate in pharmacy, arts, and medicine, Dr. Cameron, in order to fit himself more thoroughly for his duties as coroner, took an extra-mural course in law and received the degree of LL.B., in 1927, from the University of Manitoba. In this university he was Lecturer on Jurisprudence.

Herman Maclean Cameron was born in Perth, Ontario, July 24, 1882, the son of Mr. and Mrs. James M. Cameron. He came to Winnipeg with his parents in 1889, attended Carlton School, the Collegiate and Manitoba College, graduating with the B.A. degree in 1900. In 1904 he obtained his M.D. degree from Manitoba Medical College, and then engaged in practice at Carlyle, Sask.

When the war broke out he became medical officer with the 107th Battalion, "Glen Campbell's Scouts." Later he was transferred to the 3rd Field Ambulance. In 1918, he was severely wounded in the arm and was invalided to England. He was awarded the Military Cross for distinguished service in the field.

His wound unfitted him for general practice and he took a course in anaesthetics. On his return to Winnipeg he became anaesthetist to the Department of Soldiers Civil Re-establishment.

While he was coroner only a comparatively short time he rendered distinguished service in that capacity. Chief C. H. Newton, of the Winnipeg police, spoke of him as an ideal coroner and an untiring worker.

He took a keen interest in the Officers Training Corps, and was in charge of the medical unit of the C.O.T.C. with the rank of major.

In 1905 he married Edith St. John, St. Mary's, Ontario, a graduate of the Winnipeg General Hospital Nursing School, who survives him. The family consists of three daughters and one son.

The funeral took place on February 5th to Elmwood Cemetery. By his untimely death the province has lost

a valuable servant, the medical profession a valued confrère, and his intimates a true friend.

ROSS MITCHELL

Dr. James Franklin Dawson, one of the founders of the Western Hospital, died in Toronto on January 30th, in his 72nd year. A graduate of the medical faculty of the Universities of Toronto and of Victoria, Dr. Dawson saw at once the need of hospital accommodation in Toronto, and with some half dozen other men opened a small private clinic and hospital near the site of the present Western Hospital. From this small beginning has developed the Western Hospital as it is seen to-day, and it is to the foresight of Dr. Dawson and his medical confrères that Toronto West owes its present excellent hospital facilities.

Dr. Duncan Bell Irving, who came to Vancouver in 1884 and was the first physician to practise in that city, died at his home on February 13th, after a lingering illness. He was seventy-two years of age.

Dr. F. C. T. Lamoureux. For more than forty years physician of the Montreal Fire Department and well-known to old-time Montrealers. Dr. F. C. Tancrede Lamoureux died on February 2nd, following a recent stroke, at the age of 82 years.

Dr. Lamoureux was born in L'Assomption, studied in the college of his native town, and then attended Laval University, Montreal, where he received his degree in 1874. He remained in Montreal and had practised in the city ever since.

A governor of the College of Physicians and Surgeons, he was also one of the governors of the women's jail, and held the position of civic inspector of anatomy.

Dr. Oliver Mabey died in Toronto, January 13th. A detail of his life and activities will appear in a later issue of this *Journal*.

Daniel Oliver Saunders, M.D. (Harvard, 1869). The death occurred at West Clarence, N.S., on January 24th, of Dr. D. O. Saunders, following a brief attack of influenza.

The deceased was born at Clarence West, May 14, 1837, of Loyalist stock, a son of the late Oliver and Maria (Barnaby) Saunders. He received his early education in the Annapolis schools, and the Normal College, Truro, following which he taught school successfully for a number of years in various parts of Annapolis County. Subsequently, he attended the Medical School of Harvard, graduating from this university in 1869.

He began the practice of his profession at Caledonia, Queen's County, removing from there to LaHave, where for years he enjoyed a lucrative practice on both sides of the LaHave River, and where, still, his sympathetic services are gratefully remembered by many of the older inhabitants. Leaving Conquerall Bank in 1903, Dr. Saunders removed to his old home at Clarence, where he resided until his demise.

Surviving him are his widow, formerly Miss Annie McKean, of Conquerall Bank; four sons; Charles O., of Granville Ferry; Lamont, of Clarence; Dr. Reginald McG., of Lunenburg; and Otto M., of Foothills, Alta.

In recognition of his long and creditable record in medical practice he was made an Honorary Member of the Medical Society of Nova Scotia at its annual meeting in 1925.

Dr. W. D. Sharp, one of the best known practitioners in Brampton and the district, met death in an accident late in January. A B.A. in 1891 of Victoria University, Dr. Sharp graduated in Medicine

at the Western University in 1895, and commenced practice in Brampton. A practitioner of exceptional merit Dr. Sharp had at the same time taken keen interest in surgery, and it was perhaps as surgeon that he was best known in Brampton.

Dr. Charles Sheard, Emeritus Professor in the medical faculties of Trinity College and University of Toronto, an ex-president of the Canadian Medical Association, and a former member of Parliament for South Toronto, died on February 7th. He was 72 years of age. A fuller notice will be given in our next issue.

Dr. Charles E. Wilson, formerly of Napanee, died in Toronto on December 27th. Dr. Wilson had been a resident in Toronto for more than fifteen years, and went from there overseas, serving as a medical officer in the late war. He was well known in military circles in Toronto, and was actively associated with several of the fraternal organizations there. For some time he was President of the G.W.V.A., and was medical officer of the Foresters' Association.

Sir Bertram C. A. Windle. It is given to but few men to take up residence in a new country when past sixty and immediately fill a large and unique place in the life of the community; but such was the singular experience of the late Sir Bertram Coghill Alan Windle, who recently passed away in Toronto after a very brief illness. For a decade Sir Bertram had held the dual position of Professor of Anthropology at St. Michael's College, and Special Lecturer on Ethnology at the University of Toronto, but these subjects by no means represent the limit of his intellectual interests. Of distinguished English and Irish descent, he was the child of a Lincolnshire rector but became a Roman Catholic by conviction. He graduated at the University of Dublin. In his earlier manhood he was a practising physician in Birmingham, and a close friend of Hon. Joseph Chamberlain. When thirty years ago the University of Birmingham was founded on modern lines he became the first Dean of its Medical Faculty. Some years later he became President of University College, Cork. At various times he had been examiner in anatomy at most of the leading British medical colleges. Practically his last public services in the British Isles were as a member of the Irish Convention of 1918 whose pacific solutions were unfortunately rejected.

Probably if Cork had not become a centre of civil war, Sir Bertram would never have come to Canada to make his rich contributions to the cultural life of this country. Academically he held an exceptional place as reconciler between science and religion. But for the public at large the most interesting phase of his activities were his popular lectures on Archaeology. These attained such vogue that audiences of 2,000 or more were the rule rather than the exception. Archaeology had become his recreation and hobby when he was a young doctor, and in his vacations he acquainted himself with the antiquities of every corner of England. His guide books to various localities are still models of their kind, and last year there was a considerable revival of interest in "The Wessex of Thomas Hardy" published in 1901. The manner in which he expounded to Canadians the ancient and forgotten history of their mingled races was most fascinating and lucid; and his discourses gradually extended to the whole history of the human race. It was not long before his fame as a lecturer spread and brought demands for his discourses from other parts of the continent. The distinction of his personality was as marked as the luminosity of his mind, and he was not only a distinguished scientist but a great humanist. It is but seldom that Canadian academic circles have been adorned with so versatile and attractive a figure.—*Saturday Night*, Feb. 23, 1929.

News Items

BRITISH EMPIRE

Biologists for the Empire

Two leaflets prepared by the Imperial Agricultural Research Conference, 10, Whitehall-place, S.W.1, and issued by the Ministry of Agriculture and Fisheries, deal with opportunities for trained biologists throughout the Empire. One leaflet is addressed to parents and students and the other to teaching authorities. Attention is called to the large and growing demand throughout the British Empire for men trained in biology, which the universities have not hitherto succeeded in satisfying.

While salaries range from £300 to £800 at home, £500 to £950 in the Colonies, and £1,000 to £2,000 for the senior appointments, many newly created posts are extremely hard to fill.

Lack of facilities in schools and universities is given

as partly to blame for this deficiency. The physical side of science has been predominant and the biological side has been neglected. Co-operation between school and university is necessary, for lack of biological instruction in university degree courses has led to a dearth of school teachers well versed in this branch of science; and elementary teaching of biology is desirable as part of the normal curriculum in boys' schools. "Specialization after graduation" is the Ministry's advice to the undergraduate who aims at a biological career; he should first obtain a thorough grounding in the principles of biological science, chemistry, physics, and practical agriculture. The Ministry of Agriculture, the Colonial Office, and the Empire Cotton Growing Corporation are offering post-graduate scholarships affording opportunities for specialization, which are described in detail.

GREAT BRITAIN

The British Medical Association

The ninety-seventh annual meeting of the British Medical Association will be held this year in Manchester, under the presidency of Professor Arthur H. Burgess, D.L., F.R.C.S., Professor of Clinical Surgery, Victoria University.

The scientific Sections will meet on July 24th, 25th, and 26th.

The Honorary Local General Secretaries are: Dr. E. Bosdin Leech, Chadlington House, Daisy Bank Road, Victoria Park, Manchester, and Dr. Robert George McGowan, 1 Thomas St., Cheetham Hill, Manchester.

British Congress of Obstetrics and Gynaecology

The seventh British Congress of Obstetrics and Gynaecology will be held in Dublin on April 24th, 25th, and 26th. The chief subject for discussion is "Disproportion." Dr. Gibbon Fitzgibbon is President, and the joint Honorary Secretaries are: Dr. Bethel Solomons, Rotunda Hospital, Dublin, and Mr. Gerald Tierney, F.R.C.S.L, 22 Lower Bagot St., Dublin.

A Higher Birth-Rate in 1928

The Registrar-General's provisional figures for England and Wales for the year 1928, issued recently, show that the birth-rate was 0.1 per 1,000 above that of 1927; the death-rate was 0.6 per 1,000 below that of 1927 and only 0.1 per 1,000 above the lowest recorded (1923 and 1926); and the infant mortality rate was the lowest on record, being 4 per 1,000 births below that of 1923.

School Life and Health

The Annual Report for 1927 of Sir George Newman, Chief Medical Officer of the Board of Education, shows that the school medical service is profoundly altering for the better the physical and mental life of thousands of children. In spite of progress, 83,000 children under the age of 15 years died during the period under review. As compared with six years ago, however, some 30,000 lives have been saved.

About 2,000,000 children are medically examined every year, or approximately 10,000 every school day, in the elementary schools of the country. This in-

volves the employment of about 2,000 physicians, 600 dentists, and 5,000 nurses, and there are also 1,500 clinics. The principal defects found among the children during 1927 were: skin diseases, 205,833; defects of vision, 162,965; enlarged tonsils and adenoids, 162,533; deformities, 22,771; strabismus, 27,454; nervous diseases, 10,588; and organic heart disease, 5,509.

Radium for Hospitals

Notable benefactions announced during the past week will make it easier for voluntary hospitals to employ radium in all cases where it seems likely to do good. Sir Otto Beit has offered a sum of not less than £50,000 to King Edward's Hospital Fund for London, to be used for the purchase of radium at such times and in such quantities as the Distribution Committee may think fit. Sir Otto suggests coöption for this purpose on the committee of members of the medical profession to assist in allocating the loan of radium among the hospitals in the area. Preference is to be given to hospitals which show adequate staffing and equipment in their radiation departments, and especially to those in which (to use his own words) the cure of disease or the alleviation of suffering is associated with a keen interest in the furtherance of knowledge "for the relief of man's estate." Glasgow Cancer Hospital has at the same time received a gift from Lady Burrell of £10,000 for the purchase of radium. That these gifts are opportune is confirmed by the fact that during the past year there has been so large an increase in the number of patients sent to Westminster Hospital for radium treatments that the governors of the hospital have acquired a neighbouring house which is to be fitted up at once for the reception of cancer cases. A few beds in this annex will, it is stated, be available for private patients. Owing to the success which has attended the radium-needle treatment of surface cancer it is proposed to install in this annex a plant to produce radium emanation for the treatment of deep-seated cancer. The Marie Curie Institute, with 30 beds, to be devoted to radium treatment of cancer of the uterus, breast, and rectum, will soon be opened under the auspices of the Medical Women's Federation.—*The Lancet* 2: 1199, Dec. 8, 1928.

Bayliss-Starling Memorial

The appeal for subscriptions for a memorial to the late Professors Sir William M. Bayliss and Ernest H. Starling has up to present resulted in a sum which, with interest, will amount to over £2,600. The sum has been contributed principally by personal friends, relations, and pupils of the two distinguished physiologists, but very liberal subscriptions have also been received from their admirers in America, various European countries—principally Germany—from learned societies, and from various physiologists and members of the medical profession in all parts of the world. The committee which has been concerned with the memorial fund considers that the objects outlined in the printed appeal have been achieved. A small part of the fund has been employed for the provision of a simple memorial tablet, designed by Professor A. E. Richardson, F.R.I.B.A., which will be erected in the entrance hall of the department of physiology and biochemistry, where it will occupy a suitable place over the bust of Sharpey. A material memorial or an annual lecture would, however, have been less acceptable to Bayliss and Starling than the provision of means whereby young workers of suitable training and ability might be attracted into these fields of study. The bulk of the sum, therefore, will be used for the creation at University College, London, of a Bayliss and Starling studentship, which will be open to a graduate or undergraduate in medi-

cine or science of suitable standing to enable him to spend a year or more in such training in physiology and biochemistry as would fit him for research. For this purpose the sum of £2,500 will shortly be transferred to the University of London to be held in trust for the creation of such a studentship. A further sum will be added to this when the cost of the tablet and other small expenses have been covered. The Governing Body of University College has agreed to assist this scholarship in a very material way by remitting all fees for instruction and ordinary expenses payable by the selected candidate, and, further, it is hoped that it will be possible to make the first award of the scholarship in June of the present year.—*Brit. M. J.* 2: 119, 1928.

The Gibson Lecturer

Dr. William Sidney Thayer, Emeritus Professor of Medicine of the Johns Hopkins Medical School, Baltimore, U.S.A., was appointed Gibson Lecturer at the Royal College of Physicians of Edinburgh, for the triennial period, 1929-31.

A Valuable Bequest

The late Sir William Osler bequeathed to the British Museum a unique copy of the first edition of the *Liber nominis ad Almansorem*, the great work of Rhazes, the Arabian physician.

NOVA SCOTIA

St. Martin's Hospital, Antigonish, a most modern and fully equipped 100 bed hospital, recently had a hospital day of 120 patients. When one considers that Antigonish is a town of less than 2,000 persons; that the population of the Counties of Antigonish and Guysboro is among the smallest in the province, although dispersed through a considerable area, one is convinced of the evident appreciation of the country people of the advantages of a local hospital. St. Martha's is to be congratulated upon the work it is doing.

We notice from the public press from time to time that certain smaller towns have differences of opinion regarding the administration of the health nursing service. We feel that the time has come that this service should not be subjected to the local influences that may exist in a small town. Whether the nursing service is purely educational, or solely bedside, or a combined service; whether under the direction of the Victorian Order of Nurses, the Red Cross, or the Public Health Department, it appears to us quite obvious that the general supervision of this absolutely necessary service ought to be a part of the duty of the Department of Public Health in this province.

After considerable discussion an x-ray equipment has been installed in the City Hospital, Sydney, and is now being used to very considerable advantage.

Judgment has been handed down in the damage suit against the Yarmouth Hospital, as represented by its Matron and Board of Governors. (See *Journal* 20: 215, Feb. 1929). The suit was for \$10,000, and the Judge awarded damages at \$500, which we presume carries costs of the suit. The case excited very great local interest, and, we are advised, is even of provincial and Canadian-wide interest. We think, however, that "the least said, the soonest mended" is nearly always a wise course to follow. But if the matter is really of concern to the profession we should not shirk any responsibility.

While medical appointments, such as local health officers, jail physicians, etc., are made yearly there are bound to be from time to time some dismissals or appointments that do not meet with general favour. At the same time there may be appointments made of medical men to these insufficiently paid positions which do not even appeal to the appointee himself. We note that Dr. D. A. MacLeod, of Sydney, has declined appointment as jail physician. Attention is further called to the fact that after many years of service Dr. A. S. Kendall, a veteran Health Officer, has been dropped from the service by the Municipal Council of Cape Breton County. Some of the Lodges of the United Mine Workers resented the dropping of Dr. Kendall, and the Reserve Local passed a very strongly worded resolution in the matter which was given publicity in the local press.

The Ross Memorial Hospital, Sydney, is progressing favourably in its new construction work. It is hoped that patients may be received in the very early summer.

In an effort to secure a restricted area as regards bovine tuberculosis in Nova Scotia, some 32,605 herds representing 191,076 cattle were tested. In the first test 2.28 per cent of reactors were found; in subsequent tests 1.4 per cent of the cattle reacted. These figures do not apply to Cape Breton.

Recent Militia Orders note Major L. R. Morse, Lawrencetown, of the C.A.M.C. Reserve list, as retired, under the provisions of K. R., Canada, 253, November 24, 1928.

Under the same provision the following are retired from No. 7 Reserve Stationary Hospital: Captains G. B. Kennedy and D. Murray, and Prov. Lt. R. G. Maclellan, November 14, 1928. Nursing-Sisters Allan, Rice, Johnston, Mackinnon, and Mackenzie also relinquish their appointments.

Capt. F. B. Day, M.C., and Nursing-Sister Macdonald, are also retired from No. 9 Stationary Hospital.

Dr. Annie Hennigan-Sanford, (Dalhousie, 1906), of Noel, Hants County, who practised a number of years at Cheverie has now removed to Maitland, where she will again engage in active practice.

We have not heard anything about the snowmobile of Dr. A. S. Burns, of Kentville, this winter, but probably he has it stored away waiting for the snow which we are quite unlikely to have. However, we note that Dr. Mackenzie of Loggieville, New Brunswick, is making some use of his, though even there they have not so far had a heavy snow fall.

Dr. A. Webster Bowles, a McGill graduate of about seven or eight years' standing, has recently received his F.R.C.S. He is a son of Mrs. Alfred J. Newcombe, Kentville, N.S., and is located in Calgary, Alberta.

Dr. G. O. Hutchinson, formerly of Gabarus, C.B., has removed to Halifax, residing at 108 Morris St. At present he is Surgeon on the Western Union Cable ship *Cyrus Field*.

Civic election recounts are not very frequent. New

Glasgow recently had its first. Dr. John Bell was declared elected by a majority of 14 and the recount confirmed the declaration.

Dr. O. B. Keddy, of Windsor, Dr. W. E. Dunbar of Truro, and Dr. J. S. Breen of Mulgrave, continue as Mayors of their respective towns. Perhaps there are others that we have not noticed. On the whole there are fewer medical men engaged in civic politics than for several years. Perhaps they are looking higher, or perhaps, they are attending to their own particular business.

The vacancy on the staff of St. Joseph's Hospital, Glace Bay, caused by the death of the late Dr. M. T. Sullivan, has been temporarily filled by the appointment of Dr. Eric McDonald, of Reserve, a graduate of Dalhousie in 1922.

An eight-years' stay in a general hospital was recently terminated when death discharged Mr. Malcolm McKay, of Dominion No. 6. He was 85 years of age and a patient in the Glace Bay General Hospital.

S. L. WALKER

NEW BRUNSWICK

At the meeting of the Municipal Council of the City and County of Saint John, in January, it was decided to build a new building to replace the present General Public Hospital. The cost of construction will be approximately \$1,000,000.00.

The complete program is divided into two sections, to allow for the gradual replacement of the present accommodation, all to be completed in three years.

The plans for the new building are being prepared by Pond, Pond and Martin of Chicago. Local architects will supervise the construction. The necessary legislation and bonding is being dealt with at present. Construction is expected to begin in April.

The promotion of this new plan of hospitalization is due largely to the enthusiasm of Dr. G. A. B. Addy and Dr. W. W. White.

The plans for the erection of the Children's Pavilion, in association with the Saint John County Hospital for Tuberculosis, are nearing completion. The money for the new building is being provided by an anonymous donor. The estimated cost of the building is \$85,000.00. There will be four wards with five beds each, one ward of four beds, and two isolation rooms of two beds each. The building will be fronted by a large terrace to be used as a sun-porch. Provision is made for a school room 16 feet by 36 feet. The building will be constructed of brick with stone trimmings and will be two stories in height. It is expected that work will be commenced early in the spring.

At the annual meeting of the Saint John Health Centre Dr. G. A. B. Addy was again elected President.

The Health Centre reported a most successful year, all clinics showing advances both in numbers and in efficiency.

The annual meeting of the Saint John Medical Society was held towards the end of January and took the form of a complimentary banquet to the Dental Society of Saint John.

Dr. John Nugent was Chairman. A most enjoyable function was brought to a close by the election of

officers for the Medical Society for the following year, which resulted in the following appointments: *President*, Dr. A. S. Kirkland; *Vice-president*, Dr. A. S. Chesley; *Secretary*, Dr. F. T. Dunlop; *Treasurer*, Dr. D. C. Malcolm.

Dr. H. L. Abramson, Provincial Pathologist, opened a round table discussion on "Pyorrhoea," which was discussed by a large number of dentists and physicians.

Judge H. F. McLatchy, Chairman of the Board of Trustees for the Soldiers' Memorial Hospital at Campbellton, announced recently that it is the intention of the Directors of that institution to put on a drive this spring, to raise \$15,000.00 for the purpose of improving the hospital.

Dr. Margaret Parks, of the Immigration Service, spent her Christmas holidays with her family in Saint John. Dr. Parks has returned to her duties in Europe.

Dr. and Mrs. L. G. Pinault are at present on a tour through the West Indies.

Dr. Mabel Hannington, Medical Inspector of Schools, addressed the Kiwanis Club, in January, on "The problem of the mentally deficient child." Dr. Hannington has for some time been doing a great deal of work throughout the province on this question.

We were glad to hear that Dr. D. Murray, of Campbellton, has returned home much improved following an operation in Montreal.

Dr. Chas. A. O'Regan, of the staff of the Royal Victoria Hospital, visited his parents in Saint John following the New Year.

Dr. and Mrs. L. E. German have returned to Campbellton where the doctor has resumed his practice after a prolonged stay in New York, where he was engaged in post-graduate study.

A. STANLEY KIRKLAND

QUEBEC

The medical report of Dr. F. L. Phelps, Physician-in-charge of the Brehmer Rest Preventorium, Inc., submitted at the 24th annual meeting, showed that 45 women and children were discharged as being in restored health, and 42 women and children were dismissed as their condition was much improved by their treatment at the preventorium. The patients included members of many nationalities. In the resumé of work carried on throughout the past year, it was pointed out that the Brehmer Rest Preventorium played an important rôle in the struggle against tuberculosis. The excellent care of patients results in many being completely restored to health, and it was intimated that the preventive treatment and education of the inmates on the means of avoiding the disease were conducive to better understanding of its dangers on their part upon their discharge.

The various groups working in Montreal and the district for the promotion of health are uniting to organize a health exhibition in the city, which will probably take place during the month of April. Leaders in the movement are Dr. Grant Fleming, Dr. Gordon Bates, and Dr. J. A. Baudouin. The idea is to visualize the health work which is being carried on in the city, and the health problems facing the community, by means of various pertinent exhibits so as to stimulate interest in health work and assist in creating the necessary support for the official and voluntary agencies working in the health field. To this end, the statistics which have been given to the public in various forms from time to time, showing the great need of health work in Montreal, will be supplemented at this exhibition by various exhibits which will show in a way more readily comprehensible to the mind unaccustomed to juggling with figures, what the various health agencies are doing, and what difficulties they have to contend with. Demonstrations of the various means at the disposal of the health agencies will help the visitor to realize how much more could be accomplished if more staff and more financial support were available for the work. The visitor to the exhibition will see reproduced the actual work done by various agencies, and will thus be better able to form an idea of the valuable contribution they are making to the improvement of public health in Montreal and the surrounding neighbourhood.

The Foundling and Baby Hospital has given to the public an object lesson of immense value. The infant mortality in that worthy institution has been reduced to 3.3 per cent. This is the result of close study, the exercise of intelligent vigilance, and an affectionate interest in infantile life. After close observation competent judges have no hesitation in saying that the life-saving achievement of the Foundling and Baby Hospital is a definite contribution to the public welfare. It constitutes a convincing message to the civic authorities that cannot be disregarded, without carrying a verdict of cruel negligence. The past year was described as a wholly successful one by the Recording-secretary, who said that there had been no serious epidemics, few deaths, and 22 children adopted had each found an excellent home. She referred to the new isolation ward known as the Blackader Ward, which had afforded the hospital long needed isolation facilities, and has simplified the work as well as checking the spread of disease. Dr. A. D. Blackader made a plea to the city, the churches, and individual citizens to help in the problem of placing the children whom the hospital has cared for, and in educating them so that they will be good citizens and an asset to the community. Dr. C. F. Martin, Dean of the Faculty of Medicine at McGill, explained that the hospital was of great assistance to the University in teaching medical students the proper feeding of infants. He said that there was not another institution in the city carrying on work of this kind. Dr. Longpré, of the Grey Nunnery, explained that he owed the hospital a vote of thanks because, by following its methods, he had been able to decrease the mortality rate in his institution by 75 per cent.

The Board of Governors of the College of Physicians and Surgeons of the Province of Quebec has sent to Ald. Trepanier, council leader, a resolution which they have unanimously adopted, favouring the proposed identity card which the city of Montreal is about to issue. The College, through its Secretary, Dr. Henry Dorval, states that it would be a good thing if the card were made obligatory, as a means of furnishing identification and distinguishing strangers from local residents. The value of the card, the letter states, would be great in protecting the citizens against fraud and injustice and the Board of Governors gives the project its whole-hearted support. GEORGE HALL

ONTARIO

The Toronto Academy of Medicine

During January the various sections of the Academy of Medicine held their usual meetings. In addition to clinical meetings numerous papers on important topics were presented and discussed. In the Section of Paediatrics a symposium on "Acute poliomyelitis" was conducted.

The program of most interest perhaps from the historical side was that which was provided for on "Library and Historical Night" on which occasion Dr. Charles Best showed to the Academy the Harvey Historical Film which had been released for him by the English authorities to demonstrate in Canada.

On January 24th the Academy was thrown open to the students of the graduating year in the University of Toronto. According to custom, this meeting is made more of a social gathering and a strictly medical program is not provided. An unusually interesting address however, and one which would have much bearing on the life of future practitioners, was given by Professor C.

R. Fay, of the University of Toronto, who spoke on the "Relationship of medicine to the English industrial revolution."

At the regular meeting of the Essex County Medical Society, held on January 8th, Dr. A. Primrose, of Toronto, gave an address on "Tumours of the breast."

Dr. C. S. Wright, of Toronto, addressed the North Bay Medical Society on January 9th, his subject being "Physiotherapy, its methods and place in scientific medicine."

The Porcupine District Medical Society held its regular meeting at Timmins on January 11th. Dr. C. H. Hair, of Toronto, gave a talk on "The diagnosis and significance of common genito-urinary infections."

At the meeting of the Lincoln County Medical Society, held at St. Catharines on January 17th, Dr.

George E. Wilson, of St. Michael's Hospital, Toronto, gave a talk on "Visceral pain."

On January 24th, at a meeting of the Brant County Medical Society held in Brantford, Dr. H. A. Dixon, of Toronto, gave an address on "The diagnosis and treatment of the commoner skin affections," illustrated by lantern slides.

Dr. H. K. Detweiler addressed a meeting of the South Waterloo Medical Society at Galt on January 24th. His subject being "The early diagnosis and treatment of pneumonia and empyema."

Colonel L. W. Harrison, of London, England, is at present making a tour of Canada. Colonel Harrison is Director of Venereal Diseases for the Ministry of Health of England; Director of the model venereal disease clinic at St. Thomas Hospital, London; and also author of Harrison's text-book on Venereal Diseases. While passing through the Province of Ontario, Colonel Harrison addressed a meeting of the Academy of Medicine, Toronto, the Hamilton Medical Society, the Essex County Medical Society at Windsor, the Kingston and Frontenac Medical Society at Kingston, and the Ottawa Medico-Chirurgical Society.

N. B. GWYN

MANITOBA

The speech from the throne at the opening of the Manitoba legislative session on February 11th, contained the following references to matters of medical interest:

"Impressed by the importance of the prevention of disease and of securing the fullest possible measure of good health throughout the province, my government will ask you to make provision for the creation of rural health areas, by the co-operation of the government and the municipalities.

"In view of the necessity of increased accommodation for those suffering from tuberculosis, a proposal to make provision for the erection of an additional sanatorium will be laid before you.

"You will have submitted for your consideration a proposal for the provision of additional buildings for the care and treatment of those afflicted with chronic mental disease.

"My government will also ask you to make provision for the beginning during the present year of construction of additional accommodation urgently needed by the University of Manitoba."

Fire, of undetermined origin, broke out in the north wing of Portage la Prairie General Hospital at 8 a.m., February 9th, and raged for over three hours. The forty patients in the hospital were removed to places of safety by nurses and officials, and much of the operating room equipment was saved, but the north wing was wholly destroyed. Some damage was also done to the central block. The total loss will be over \$7,000. Great credit is due to the nurses and officials for saving the patients.

Dr. Rawson, of Newcastle-on-Tyne, England, is acting as locum tenens for Dr. Hugh McGavin, Plum

Coulee, during the absence of the latter at the legislative session.

A distinguished party of surgeons, members of the American College of Surgeons, addressed a community health meeting in Winnipeg on March 7th, and gave clinics and demonstrations on the following day. The party included Drs. Chas. L. Scudder, Boston; Burton J. Lee, New York; A. W. Adson, Rochester, Minn.; B. C. Crowell and M. T. MacEachern, of Chicago; and Mr. Robert Jolly, Houston, Texas. Motion-picture films illustrating digestion, blood transfusion, infections of the hand, and prostatic hypertrophy, were shown. All the meetings were most interesting.

The following have been appointed members of the Manitoba Committee on Medical History: Drs. Ross Mitchell, Chairman; Harold Popham, Secretary; R. M. Simpson, H. Bruce Chown, Lennox Bell, J. D. Adamson; Honorary Members are, Dr. H. H. Chown, Dr. E. S. Popham, and Hon. Dr. E. W. Montgomery; Corresponding Members are, Hon. Dr. R. S. Thornton, Deloraine; Dr. J. N. Andrew, Minnedosa; Hon. Dr. Brett, Banff.

At the regular monthly meeting of the Winnipeg Medical Society, on February 15th, the following program was presented "The medical attitude towards therapeutic abortion," by Dr. D. S. MacKay; "Medical organization," by Dr. E. J. Boardman; "The kidney complications of pregnancy," by Dr. A. Hollenburgh.

ROSS MITCHELL

It is announced that Dr. D. H. McCalman, formerly Professor of Obstetrics in the University of Manitoba, has been appointed coroner for the district of Winnipeg, in the room of Dr. H. M. Cameron, who died recently.

SASKATCHEWAN

The Tuberculosis Sanatoria and Hospitals' Act has been amended so that all municipalities are to be directly taxed through the general municipal levy or by special levy for sanatoria support. Any person who has been a resident of Saskatchewan for a period of at least six months and who is suffering from tuberculosis is entitled to receive care and treatment at the expense of the Anti-Tuberculosis League.

Dr. A. S. Sinclair, formerly of Lanigan, has opened an office for general practice in Regina.

Inoculations in the city schools of the North Battleford district against diphtheria and scarlet fever have been carried out for the past three years, so that prac-

tically all the city children are now protected against these diseases. The work was done by the local medical men, under the auspices of the local Red Cross, for a very nominal fee in the case of those who were able to pay, and gratis for the poor.

After a dinner at the Parliament Buildings, Miss Nan McMann addressed the Regina and District Medical Society on the work of the Victorian Order of Nurses. The meeting passed a resolution in favour of having a branch of the Order started in Regina. This meeting was also addressed by Major G. W. Treleaven, D.S.O., M.C., R.C.A.M.C., of Ottawa, on "The medical aspects of flying."

LILLIAN A. CHASE

ALBERTA

The election to the membership in the Council of the College of Physicians and Surgeons of Alberta resulted in the return of the three former members who stood for re-election, namely, Dr. W. S. Galbraith, of Lethbridge; Dr. W. H. McGill, of Calgary; and Dr. W. V. Lamb, of Camrose.

At the annual meeting of the Council of the College of Physicians and Surgeons of Alberta, held on February 1st last, Dr. Richard Parsons, of Red Deer, was elected President; and Dr. A. E. Archer, of Lamont, Vice-president.

The Council of the College of Physicians and Surgeons has taken into consideration the question of psychopathic hospitals and has decided to urge the Provincial Government to erect suitable hospitals, with the hope that co-operation may be had with the authorities in the larger cities of the province in the erection of twenty to forty bed hospitals for this purpose.

The women of Alberta, as represented by the United Farm Women of Alberta, usually take up health questions at their annual conventions. This year was no exception to the rule. Two important resolutions passed were: one calling on the Government to establish psychopathic hospitals for patients who are not suitable for mental hospital care, and the other calling for compulsory health examinations of school children in the country, similar to those provided in the cities. At the present time provision is made by law, permitting school districts to engage health officers, and pay for the same from their taxes, but this is a dead letter in most districts. The idea in the resolution that was passed and presented to the Government had an underlying hope that the Government would have to assist the scheme financially, in order that it be made compulsory.

The Roman Catholic Church has added largely to the number of hospitals in this province during the past year. Besides the large addition to the Holy Cross Hospital in Calgary, commodious up-to-date hospitals have been built by this organization at Westlock, Radway Centre, Vilna, Galahad, Hardisty, Camrose, Mundare, and Edson. Catholic Hospitals in Edmonton have been enlarged to meet the continued growth of the city and the demand for greater hospital accommodation. The Catholics have also purchased a hospital at Lethbridge, with a view to enlarging this structure.

There has been much discussion concerning the site of the proposed new \$1,275,000 Municipal Hospital in Calgary. It is not likely, according to current reports, that the building will be erected anywhere but on the present site.

It is altogether likely that a special act will be introduced at the coming session of the Provincial Legislature which will authorize the government to take over the control and operation of the University Hospital from the University of Alberta at Edmonton. Under the proposed plan estimates for the hospital will be authorized directly by the Legislature through the University. Up to the present time the University has used the hospital to a large extent for the training of its students and it is proposed to use it more as a provincial health centre.

The city of Lethbridge is the centre of a large hospital scheme at the present time. It is contemplated

taking a larger number of townships than has hitherto been the case, making a rural hospital municipality. It has been suggested that all south of Lethbridge to the United States boundary be taken in, as well as a large area all around the city on other sides. Whether the idea, when put into action, will have the effect of causing the country doctors to settle in Lethbridge remains to be seen.

For some time past the Provincial Tuberculosis Sanatorium in the vicinity of Calgary has been taxed for further accommodation, and there is a large waiting-list for admission. The Department of Health of the province is preparing a report reviewing the present status of the tuberculosis problem in the province.

The report of Drs. Hincks and Farrar, of Toronto, on the mental hospital at Ponoka, and on the various institutions for mental deficiency in the province, has recently been published and covers ninety-three pages of criticisms and recommendations. There evidently was a real need for such a searching enquiry into the care of the mentally afflicted in this province. These reports advise the restriction of the population at Ponoka Hospital to 1,000. This institution is situated about seventy-five miles from Edmonton. They advise the building of a new mental hospital at or in the vicinity of Edmonton, chiefly because the medical faculty of the University of Alberta could give consulting service if it were close at hand. The cottage system is recommended, and accommodation should be prepared for 1,000 to 1,500 patients. One important recommendation is for psychiatric wards which at present are not available in the province, and which are badly needed. These wards will be in connection with the University Hospital at Edmonton and the General Hospital in Calgary, and will provide for at least six male and six female patients in each hospital. If the plan recommended for mental hospitals is put into effect, nearly four million dollars will be spent by the government for new buildings.

Recommendation in this report is also made that the Sterilization Act should be put into effect.

Last year steps were taken to have an investigation into the workings of state medicine in other countries and the Government promised that steps would be taken to gather this information. It is on the boards that an interim report will be made this session, though it will be most incomplete, as it has been largely gathered by correspondence, we are informed.

Recently the Minister of Health announced at the Farm Women's Convention that he had cabled for women doctors to come to Alberta to work in the outlying districts. Particulars were not then given, but in response to a question from the floor of the Legislature, he stated that he had cabled regarding arrangements for five women.

A woman physician visited Alberta and practised for a short time, to get a better understanding of the situation and we are informed that she returned, and soon began to raise a fund for transportation purposes to secure women doctors. Since Alberta has reciprocity with Great Britain these doctors may be registered without examination. Three or four British women doctors have registered here, and they have made good in the province.

Reference was recently made in the press concerning the action of the Hon. George Hoadley in cabling to England for a number of women doctors to come to Alberta to practise. Apropos of this request the Calgary

Herald wrote some very pertinent remarks concerning the matter, which will bear repeating:

"It is not too much to say Mr. Hoadley has done about everything possible to put the medical profession at a disadvantage. His latest action is in a piece with his policy of establishing medical clinics which seriously reduce the expectant practice of the local medical men, of authorizing the employment of under-trained and under-educated nurses to do medical work in the absence of qualified practitioners, and guaranteeing the payment of indigent patients' bills in municipal hospitals, but not those of doctors.

"One result of the Hoadley policy, and the Government must take responsibility for it, is that medical graduates have been shunning this province for years past. They know that conditions here are not attractive. There is too much government interference with the reasonable expectation of making a decent living. Records show that only six doctors have come to Calgary to practise in the past five years and four of these came on contract with existing medical firms. The same state of affairs is true in Edmonton. Rural practice is not drawing recruits, and why, it may be asked, import doctors from across the ocean when the taxpayers of Alberta are spending hundreds of thousands of dollars annually on a Provincial University? One section of the University's activities is devoted to the training of doctors. Are the graduates to find employment in their native province or to be forced to go to the United States, or elsewhere? If there is a crying need of medical attention in the outlying parts of the province, why are not last year's Alberta graduates given the opportunity to establish practices there? If there is a scarcity of suitable graduate material from the University of Alberta, why not give the graduates from sister provinces the first chance?"

Five years ago a Chiropractic Act was placed on the statute books, which required that all future applicants should pass an examination on the basic subjects as well as on the practice of chiropractic. The examining board has been composed of two chiropractors, two doctors from the staff of Alberta University, and a layman who acts as chairman. Up to the present time none have passed the examinations, and now the chiropractors have got hold of a local branch of the United Farmers Association to ask that the restrictions be removed, so that those who are not able to come up to the minimum requirements of the examinations may easily pass the proscribed test and secure a license to practise.

It is with the deepest regret that we record the death of Professor F. H. Mewburn, who for the past eight years has held the chair of surgery in Alberta University. His passing is mourned by thousands in this province, who knew him as friend and counsellor, and skilful surgeon. He was known and loved by the profession and by the public from one end of the province to the other.

Reference is made in another part of the *Journal* to his death.

The annual banquet of the Calgary Medical Society took place on Tuesday evening, February 5th, in the Elizabethan rooms of the Hudson's Bay Company's store. It was held under the presidency of Dr. A. W. Park, and besides representatives from the legal and dental professions in the city, others from the Medical Societies in Edmonton, Medicine Hat, and Lethbridge were present.

Professor R. C. Wallace, LL.D., President of the University of Alberta, delivered a thoughtful address on the "Problem of the child" before the Calgary Council of Child Welfare recently, in which he stressed the tremendous part played by heredity, and "Our only weapons in helping the work forward are environment, education, good health and happiness."

Two addresses were recently given in Calgary by Dr. W. A. Grey, Associate Professor of the Dental Department of the University of Minnesota, in Minneapolis, to the Calgary branch of the Alberta Dental Association; the medical profession of the city were cordially invited to attend one of the meetings.

Dr. George R. Johnson of Calgary, Registrar of the College of Physicians and Surgeons of Alberta, has been appointed a coroner.

Dr. L. A. Miller, formerly of Westlock, has begun to practise in Edmonton, after some time spent in post-graduate work.

His Honour, the Lieutenant-Governor of Alberta, Dr. William Egbert, is now sojourning in California for a period of six weeks. He is accompanied by his brother, Dr. J. H. Egbert.

Dr. J. A. Matheson, until lately associated with Dr. A. G. Scott of Bassano, is now taking post-graduate work at the Harper Hospital, Detroit.

Dr. H. A. Hammon, son of A. A. Hammon of Taber, was the centre of attraction recently when a diphtheria epidemic developed at Fort Vermilion in the far north, where he is in practice. He sent out a call for the anti-toxin, which was sent from Edmonton by aeroplane in bitterly cold weather. The distance travelled to this post was about one thousand miles.

Dr. W. W. Upton for many years in practice in the city of Calgary, has now been associated with Dr. W. H. McGuffin in the Radium and X-ray Institute in the same city. Prior to making this change he spent some time in the special study of radium therapy in New York. G. E. LEARMONTH

BRITISH COLUMBIA

State medicine in British Columbia has now entered the realm of practical politics, the Government last week having consented to appoint a commission to obtain information and bring in a report next year as to the advisability of health insurance and maternity benefits.

A full meeting of the Executive of the British Columbia Medical Association was held at the Georgia Hotel on January 26th, at 6:30 p.m., when many matters of considerable importance were dealt with.

Plans for post-graduate work were discussed, and it was decided to have two tours, one in June, and one in September, the latter to coincide with the date set for the annual meeting.

The British Columbia committee of three on the Historical Section of the Canadian Medical Association was appointed, those chosen being: Dr. W. D. Keith, of Vancouver, (Chairman); Dr. G. E. Drew, of New Westminster; and Dr. C. H. Bastin, of Vancouver. This committee has power to add to its numbers from the different sections of the province, and it is expected that some excellent work will shortly be commenced on historical medicine in British Columbia.

The following doctors were elected to membership in the British Columbia Medical Association: John Henry Bennett; Murray McCheyne Baird; Ewen Cameron McLeod; Errol Lloyd McNiven; Roy Douglas Nasmyth; Robert Bruce Shaw; Wallace John Dorrance; James

Stuart Daly; William Harold Moore; Stewart Austin Wallace; Robert Alan Gilchrist; Ethlyn Trapp, George Arnold Minorgan.

Representatives of the British Columbia Medical Association nominated for the Canadian Medical Association Council for 1929 were: Drs. Wallace Wilson, G. L. Hodgins, J. W. Arbuckle, G. T. Wilson, F. M. Bryant, A. W. Bagnall, W. A. Clarke and H. M. Robertson.

The "Canti" film was shown to members of the Victoria Medical Society in the Capitol Theatre, Victoria, at noon on Tuesday, February 5th. On February 8th, the British Columbia and Vancouver Medical Associations had a combined showing at the Dominion Theatre, Vancouver. At the latter, the film was explained to the profession by Dr. C. Wesley Prowd, Radiologist of St. Paul's Hospital, who saw the film when recently in England, which greatly added to its interest. A large and appreciative audience attended.

Dr. Oswald Lowsley, of New York; Dr. Ernest Sachs, of St. Louis; and Dr. W. E. Gallie, of Toronto, have definitely promised to be among the speakers at the Ninth Annual Summer School of the Vancouver Medical Association, to be held in Vancouver on June 25th, 26th, 27th and 28th next.

Dr. Ralph C. Matson, of Portland, Oregon, was in Vancouver on January 8th, and gave a most interesting lecture to the Vancouver Medical Association on "The results obtained by surgical treatment of pulmonary tuberculosis."

In view of the recent amalgamation of two outside municipalities with the city of Vancouver, and the changes thereby necessitated in public health matters in the greater city, a committee appointed by the Vancouver Medical Association made a survey of the health situation and presented a report which was adopted at the general meeting on January 8th. This report will be placed before the City Council for their

guidance in the development of the public health services of Greater Vancouver.

Another committee of the Vancouver Medical Association has been at work for some time past on the hospital situation in the new city, and a report of its findings will be laid before the Association at the next meeting.

The Western section of the American College of Surgeons, comprising British Columbia and the states of Washington and Oregon, met in Vancouver on February 27th and 28th.

Dr. Murray Baird is now at the Vancouver General Hospital, where he has charge of the new private-ward wing.

Dr. Lee Smith, of Princeton, has left for Europe to take post-graduate work. A farewell reception was held for the doctor by representative residents of the Similkemeen district, when he was presented with a handsome gift, as a slight appreciation of his many valuable services to the community.

Dr. Smith will be succeeded in his practice by Dr. R. S. Manson, of Hatzic, a graduate of Edinburgh University, who is known to many in the district as he relieved Dr. Smith for a time during the past summer.

Dr. C. H. Bastin, of Vancouver, and Dr. H. Carson Graham, of North Vancouver, have been recommended for membership in the Canadian Medical Association.

Dr. T. C. Holmes, of Lillooet, has gone to Burns Lake to take up the practice there formerly held by Dr. Steele, who is now at Giscome. We understand that a new hospital is shortly to be erected at Burns Lake.

Dr. Auld, who returned from China some months ago, has gone to Nelson to relieve Dr. L. E. Borden, M.L.A., during the present session. C. H. BASTIN

UNITED STATES

The American College of Physicians

The thirteenth annual clinical session of the American College of Surgeons will be held in Boston, Mass., from April 8th to 12th, under the presidency of Professor C. F. Martin, Dean of the Medical Faculty of McGill University, Montreal. The headquarters will be at the Hotel Statler. Besides papers and clinics a symposium on the important subject of "Deficiencies" will be conducted on one of the evenings. Among the Canadians who are to contribute to the program may be mentioned Drs. C. F. Martin, J. C. Meakins, Edward H. Mason, and I. M. Rabinowitch, of Montreal; W. L. Holman, of Toronto; J. W. Crane and George C. Hale, of London, Ont.

Second Annual Graduate Fortnight of the New York Academy of Medicine

The New York Academy of Medicine is making arrangements for a second series of lectures at the Academy, co-ordinated clinics, clinical demonstrations and courses in hospitals and teaching institutions of New York, on the subject of "Functional and nervous problems in medicine and surgery." The Fortnight will be held during the period, October 7 to 19, 1929.

It is believed that this year's subject will attract not only the medical profession generally but also social workers and those especially interested in public welfare. The field includes those functional disturbances which have been much neglected in the last thirty years in

comparison with the structural disturbances of the human body.

Evening sessions will be held at the Academy at which well known authorities will discuss many phases of the general subject. During the mornings and afternoons specially prepared clinical programs will be presented in a number of the leading hospitals of the city. It is planned to present a full day's clinical program in each hospital co-operating in the Fortnight. Among the special subjects which will be considered in the lectures and clinical programs are: Sleep and insomnia; Headache and migraine; Endocrines and the vegetative system; The involuntary nervous system; General survey of visceral neurosis; Metabolism and the vegetative nervous system; Allergy and the nervous system; The surgery of the vegetative system; Traumatic neuroses; Post-operative neuroses; The psychoneuroses; The cardiac neuroses; The digestive neuroses; The vascular neuroses; Shock; Psychotherapy; Hysteria; Mental hygiene in connection with general practice; Habit problems in children.

The medical profession is invited to attend. No fee will be charged for attendance at any of the meetings or clinics on the program.

An Accident with Ethylene

Dr. Dalton Wilson, anesthetist to the Walker Hospital, Evansville, Indiana, and a member of the Associated Anesthetists of the United States and Canada,

24 HOUR TREATMENT of SCABIES

Danish Ointment

"Frosst" No. 17

Rather remarkable results are being obtained in the 24 hour treatment of Scabies with Danish Ointment of the formula used at The Massachusetts General Hospital, Boston.

Dr. Arthur M. Greenwood of the Massachusetts General Hospital published an article in the A.M.A. Journal, volume 82, No. 6, from which we quote as follows:—

"At the Massachusetts General Hospital, we have used it in eighty-four cases. We have had three failures. In each case the patient did not follow directions. We have had two cases of dermatitis following its use. Both of these patients used the ointment continuously for five days. It is distinctly inadvisable to use it in this way, judging from these cases. We have used it on patients with delicate blond skin, as well as in the pigmented, more resistant types; in children as well as adults, and have had no bad results when it was properly used. In our experience with scabies we have found it commonly necessary to treat the entire family, and in such cases the three or five-day treatment is often an almost insurmountable obstacle to a cure because the family will not, or cannot carry it out thoroughly and it is in such circumstances that the twenty-four hour method of treatment is of most value. With the three or five-day treatment we frequently have a continuation of the itching for one or two weeks after the original disease is cured. This is often from a mild or severe sulphur dermatitis which follows the treatment. With the twenty-four hour method we have not encountered such cases.

It is not advisable to use this ointment unless one is certain that it is properly made."

Danish Ointment (Ointment No. 17, Frosst) for the 24-hour treatment of Scabies is prepared with greatest care and with meticulous adherence to formula. It will not cause dermatitis when used according to directions.

The history of the Danish 24-hour treatment of Scabies extends back to 1911 when Professor Ehlers of Copenhagen first used it at the hospital of the City of Copenhagen with an ointment made up by a pharmacist under his directions.

The important ingredients in the ointment are the sulphides of potassium on which its activity depends, a production of Hydrogen sulphide taking place when the ointment is applied to the skin.

DIRECTIONS for USE

After a cleansing bath of warm water and soap, the patient is thoroughly dried and the ointment applied gently but thoroughly over the whole body except the head. Care must be taken that all the skin is completely covered.

After 15 minutes, which is sufficient time for the ointment to penetrate the skin, the patient may go to bed. The next day at about the same hour, he receives a bath with soap and warm water and this finishes the treatment.

Following the treatment, the patient should dress in fresh clean underclothing and all the discarded clothing should be disinfected. The bed linen should also be sterilized by boiling in hot soapsuds.

One application is all that is necessary and when properly used there will be no resultant dermatitis.

Danish Ointment Frosst is available in two sizes, 2 ounces and 1 pound.

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was instantly killed on January 3rd, when a drum of ethylene gas, which he was trying to repair, exploded. It is stated that the explosion practically destroyed part of the building and injured also Dr. Wilson's assistant. The accident is believed to have been due to a spark caused by friction against the metal drum.

Evolution

Arkansas has passed an anti-evolution law. Several books are placed on the *index expurgatorius*. Webster's Dictionary may not be used in educational institutions which are supported wholly or partially by public funds! No book is to be used in schools which teaches that man

"descended or ascended from a lower class of animals," and teachers are forbidden to define "evolution." Probably the Encyclopædia Britannica and similar reference works will be "taboo" under the new law.

The Medical College of Virginia

The Chemical Foundation, Inc., of New York City, has made a grant to the Medical College of Virginia, Richmond, to make it possible to employ for a three-year period a full-time expert to enlarge its present program of research in chemistry as related to medicine, surgery, and dentistry. The special laboratory for this work will also be considerably enlarged.

GENERAL

The Congress of Medicine in Egypt

Over two thousand medical delegates and members of the medical profession, drawn from Europe, North and South America, the Near and Far East, gathered in Cairo on December 15th last for the twofold purpose of celebrating the Centenary of the Cairo Faculty of Medicine and joining in a Conference on Tropical Medicine and Hygiene.

Since Clot Bey was first summoned from France by Mohammed Ali in 1825 to inaugurate a medical service in Egypt, enormous strides have been made, and if during the first half of this period progress was slow, and even at times interrupted, during the last fifty years a hospital service, a centre of medical education, and a public health administration have emerged which reflect immense credit upon the Governments by which they have been fostered, and afford an enduring memorial of the many notable men—such as Bilharz, Sandwith, Milton, Keatinge, and Loos (to mention only a few) who have chiefly shaped the course of events. It was right that advantage should be taken of the Centenary celebration to invite the attendance of representatives from all over the world to see for themselves how surely the foundations of Egyptian medicine have been laid, how bright are the prospects for its future, and with what zeal the problems of preventive and curative medicine peculiar to the land of Egypt are being tackled. The British delegation was numerically small but representative, including, amongst others, Sir George Newman, Sir Robert Philip, Sir Berkeley Moynihan, Sir Holburt Waring, Sir StClair Thomson, Sir William de Courcy Wheeler, Sir Frank Collyer, Dr. Monro Kerr, Prof. Nuttall, and Dr. J. B. Christopherson. The proceedings opened on the morning of December 15th with a function in the Opera House attended by H. M. King Fuad. After an introductory address by the President of the Congress, His Excellency the Minister of Education, addresses were presented by representatives of the Governments of France, England, United States of America, Germany, Italy, Greece, and Japan, Sir George Newman being the English spokesman. The same afternoon King Fuad opened in state a Medical and Sanitary Exhibition in the grounds of the Royal Agricultural Society, in which the Egyptian Department of Public Health had staged an attractive display of models illustrating every phase of the work now proceeding.—*The Lancet* 1: 101, Jan. 12, 1929.

A Faculty of Comparative Medicine Desired

The committee on veterinary education of the Central Canada Veterinary Association has recommended that a faculty of comparative medicine be opened at one of the larger Canadian universities, and especially emphasized that one of the finest faculties of comparative medicine in its day formerly existed at McGill University.

The committee was of the opinion that if sufficient

funds were available perhaps this university could be prevailed upon to re-open this faculty. It believed that such a faculty would be a valuable asset to education and also to the basic industry of the country.

Medical Secrecy

The General Council of the Seine, France, has just enacted that "The law of November 30, 1892, in regard to the practice of medicine is to be amended, to the effect that every physician, health officer, and mid-wife shall be under obligation to divulge to the public authority the diagnosis he has made in cases which entail the payment of an honorarium from the budget of the State, or of departments, communes, and other public establishments."

Honorary Degrees at Paris

At the formal opening of the schools at the University of Paris last autumn honorary doctorates were conferred on Sir Charles Sherrington and Lord Melchett, of England; Baron Descamps, of Belgium; Rafael Altamira, Spain; and William S. Thayer, United States.

International Hospital Congress

In connection with this the first Congress of its kind, which is to be held at Atlantic City, June 13th to 15th, there will be a very valuable exhibit of plans, and models of modern hospitals, of various types of hospital equipment and supplies, and of statistical data relative to the care of the sick throughout the world.

The purpose of the Congress is to bring together all those interested in hospital administration, hospital construction and organization, and to afford by personal contacts and exchange of ideas a better understanding of hospital needs and problems as well as hospital progress throughout the world.

Secretary-General: Dr. E. H. Lewinski Corwin, 2 East 103rd Street, New York.

Gift to the University of Utrecht

The trustees of the Rockefeller Foundation have placed the sum of 400,000 florins (about \$170,000) at the disposal of the University of Utrecht for the establishment of a new Institute of Physiology.

Free Book for Medical Students who Intend to Visit Hungary

A guide book for physicians and medical students who intend to visit Hungary is being distributed gratis by the Cunard Line. It gives full information concerning the conditions under which members of the medical profession may continue their studies in Budapest, giving courses which may be taken up at the various clinics and universities. The book may be obtained by dropping a card to the Cunard Line, 25 Broadway, New York.

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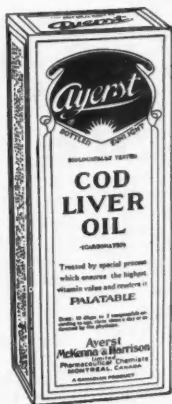
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The anti-infective (growth promoting) potency of this oil is determined by observing its effect on the growth and development of young albino rats deprived of this factor experimentally for a prolonged period, after the method officially described in U.S.P.X.



Assay for VITAMIN D

The anti-rachitic potency is determined by observing its value in promoting recalcification in the tibia and femur of albino rats suffering from experimental rickets, following a modification of the method described by McCollum, Simmonds, Shipley and Park.

AYERST COD LIVER OIL is carbonated by an improved method which preserves its vitamin potency and renders it

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Book Reviews

Aspects of Age, Life and Disease. Sir Humphry Rolleston, K.C.B., M.D. 304 pages. Price 10/6. Kegan, Paul, Trench, Trubner & Co., London, 1928.

It is useful to have under one cover a number of essays which have so far been scattered through the journals. These essays are probably familiar to some already, but most of them will be new to Canadian readers. They cover a varied group of subjects, as may be gathered from the title, but an outstanding characteristic common to them all is their wealth of allusion and literary research. Take such a note as "in one of his lighter touches the late Sir Victor Horsley described our three British institutions—John Bull, Father Christmas, and Henry VIII—as examples of fatty degeneration due to chronic alcoholism." And again, "there is a form of tremor in the elderly which often affects the head, and paralysis agitans or Parkinson's disease—so-called after its describer James Parkinson, a humble general practitioner in Hoxton, who was also a palaeontologist and author of pamphlets advocating 'bloodless revolution,'" or again, "patients with pulmonary or cardiac disease may experience moods of exaltation as well as of depression." . . . The question naturally arises does the exaltation of pulmonary tuberculosis in any degree account for the inspiration and imagery of Keats, R. L. Stevenson, John Addington Symonds, Laurence Sterne? How did the tortures of stone and gout, the two sharp-fanged sisters, affect Montaigne, Sydenham, Pepys? We know that Montaigne considered but philosophically rejected suicide as a remedy, that Sydenham gave a graphic and classical description of the pains of both, and that Pepys remained cheerful throughout his life." And finally, "James Arthur Wilson (1795-1882), the scholarly physician to St. George's Hospital, who in his Harveian Oration at the Royal College of Physicians in 1850 made jokes in Latin, such as, 'Nix noster per aethera notus,' referring to John Snow (1813-1858), the early anaesthetist, and incidentally the first to establish in 1849 the transmission of cholera by water; it is on record that he was 'a teetotaler when there were only a few, and also a vegetarian.'"

How much has been compressed into these references; enough to make one want much more, and that is a form of stimulation which every writer must desire to produce. This is a pleasant and informative volume, and if there are other similar essays they should also be collected and given us, and if there are no more at present, Sir Humphry should give us others in the near future.

H. E. MACDERMOT

The Simple Goitres. Robert McGarrison, C.I.E., M.D., D.Sc., LL.D., F.R.C.P. 106 pages, 143 illustrations. Price \$3.65. Baillière, Tindall & Cox, London; Macmillan Co. of Canada, Toronto, 1928.

The book is a report to the International Conference on Goitre which was held in Berne in August, 1927, on the known facts as to the causes of simple or non-toxic goitre. The report was later somewhat amplified to its present published form.

It consists of two parts, in all 106 pages. In the first part are brought together all the known facts as to occurrence, epidemiology, and the results of experimental work on animals and humans. Only three classes of goitre are considered, the parenchymatous, the diffuse colloid, and the lymphadenoid. These different types are carefully described, and the pathological and clinical characteristics of each class are emphasized. This portion of the book closes with a conclusion of half a page in which the author states that our knowledge of this subject at present is far from being complete.

The second and larger part of the book consists of diagrams and photographs with explanatory notes of both animals and humans showing the results of various feeding experiments. Much of this work has been done by various investigators all over the world, but a great deal has been done by the author himself during the last twenty-six years.

The book is easy to read, the subject matter being arranged in paragraphs. Some of his investigations, which are briefly described in the simplest language, must have taken many months of careful planning before they could be undertaken, and still longer to carry out. Where the conclusions drawn from his own investigations are not those generally held the author merely states that such were the results as they appeared to him. The very important rôle of bacterial infection is emphasized over and over again. The importance and the proper place in both prevention and treatment of goitre of both iodine and a well balanced diet is also made clear. Reading the book one feels the statements are those of one having a masterly knowledge of the subject, but the modesty of the man is seen in the last line of the introductory paragraph where he quotes from Sir Thomas Browne saying "all that is contained therein is in submission unto maturer discernments."

R. H. M. HARDISTY

Obstetrics. Normal and Operative. George Peaslee Shears, B.S., M.D. Fifth edition, revised by Philip F. Williams, Ph.B., M.D. 745 pages, 423 illustrations. Price \$8.50. J. B. Lippincott Co., 201 Unity Bldg., Montreal, 1928.

This book is essentially the working obstetrician's manual, and fully merits its popularity. The plan of the work is different from the majority of obstetric treatises, in that the clinical side is stressed, with absence of chapters on embryology, history of obstetrics, and the rarer anomalies.

Part one is devoted to normal pregnancy, labour and the puerperium. The physiological and anatomical changes are well described. The differential diagnosis is the only weak spot in this excellent division. Part two considers the pathology of pregnancy and labour and is excellently written. The recent work on toxæmias is incorporated. The mechanical side of mal-presentations is discussed by a master obstetrician. Part three incorporates all obstetric surgery and is very lucidly written. Part four deals with puerperal infections and other complications, and the care of breasts and nipples. The chapter on the breasts is worthy of any obstetrician's review.

The reviewer feels that this volume will be popular with student and practitioner alike. The many excellent illustrations impress the reader and to the student are invaluable.

J. J. MASON

Diseases of Children. Edited by Hugh Thursfield, D.M., M.A., F.R.C.P., and Donald Paterson, M.B., M.R.C.P. Second edition. 1106 pages, 205 illustrations. Price 45/- net. Edward Arnold & Co., London, W.1, 1929.

The list of contributors to this second edition contains the names of all those figures well known in British paediatrics. The introductory chapters cover some aspects of heredity and immunity. The chapters on infant feeding are rather dogmatic, but are more in accord with the American School of Paediatrics than is usual in British text-books. The chapter on neonatal diseases is concise but pleasingly complete, and the chapter by G. F. Still on some forms of oedema in childhood is very illuminating and interesting. The various systemic diseases are dealt with in the order customary in such a



Fig. I
Severe rickets

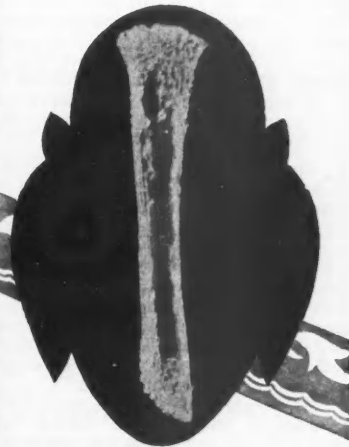


Fig. II
Rickets in tibia of infant six months of age

Cod Liver Oil *for the prevention of* Rickets

MEAD'S Cod Liver Oil can be used with good results for the prevention of rickets in all cases and the cure of rickets when the disease is in its incipency.

Advanced rickets as pictured above in Figure 1, are of necessity beyond medicinal intervention. But Mead's Cod Liver Oil in doses recommended, if prescribed by the physician, will prevent decalcification and result in good bone structure.

Mead's Cod Liver Oil is standardized, and

uniformly potent. Its potency is determined according to the Shipley line test in the biological laboratories of Mead Johnson and Co.

It is a valuable adjunct in the diet of expectant and lactating mothers. Attention is also directed to the use of Mead's Cod Liver Oil in cases of phlyctenular conjunctivitis due to the absence of vitamins in the diet of the child.

Mead's Standardized Cod Liver Oil is a product of the Newfoundland Cod exclusively.

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text-book, but more fully than usual, covering subjects usually found in purely medical texts.

The book is adequately illustrated with prints and two coloured plates, and the index is very complete. One feature to be commended is the placing of references at the end of the discussion of each subject, which adds considerably to its value to students.

The book is very complete, and is well printed on good paper, but it could, with profit, have been divided into two smaller volumes, making it more convenient to read.

R. R. STRUTHERS

Chronic (Non-Tuberculous) Arthritis. A. G. Timbrell Fisher, M.C., F.R.C.S. (Eng.). 232 pages, 186 illustrations. Price 25/- net. H. K. Lewis, 24 Gower Place, London, 1928.

Probably in no field of medicine has a greater barrier confronted our science than that of chronic arthritis of the non-tuberculous type. Some advances have undoubtedly been made in recent times in regard to etiology through the aid of bacteriology and biochemistry, and advances have also been made by the orthopaedist in preventing and correcting deformities. However, much remains to be done. Let those of imagination, like the author of this volume, press forward so that in due time a full knowledge of these diseases will result and widespread crippling deformities to a great extent be eliminated.

Mr. Timbrell Fisher has approached the study of sub-acute or chronic joint disease in the Hunterian spirit. He has had recourse to much experimental work in regard to the applied physiology of the articulations and these experiments have enabled him to enunciate certain principles governing the physiology of joints.

Much original work is described in connection with the pathology of the two great common forms of chronic arthritis—arthritis deformans and osteoarthritis. Chapters are given up to the consideration of etiology and symptomatology. Under "Treatment" the importance of the prevention of deformity is stressed and the medical treatment is fully discussed. The various surgical measures which the author has found most helpful are described. It is the knowledge given to the profession by such work as this that will help very materially in rescuing chronic articular troubles from the hands of quacks and charlatans. Many excellent illustrations and x-ray photographs add to the value of the volume. The work is well printed and a good bibliography and index concludes the book.

Suffice it to say that this short volume of some 232 pages should be read by everyone in the profession interested in chronic joint diseases.

W. D. KEITH

Neurosurgery; Principles, Diagnosis and Treatment. William Sharpe, M.D. and Norman Sharpe, M.D. 762 pages, 213 illustrations. Price \$11.00. J. B. Lippincott Co., Montreal, 1928.

This well printed, excellently bound, book is well illustrated by numerous photographs of actual specimens, and by many x-ray plates. A large number of case reports are included in the text, illustrating the clinical course, symptomatology, treatment, and anatomical findings of the various lesions.

In the section dealing with the surgical conditions of the brain, the authors lay great stress on the value of routine examination of the fundi and of lumbar puncture. A chapter on "Special examinations and tests" is included. This describes the methods of performing cisterna puncture, ventricular puncture, air insufflation, and lipiodol injection, and defines their indications and value. The chapters on brain tumour and brain abscess are written entirely with a view to diagnosis and treatment, no attempt being made to describe the pathology of the lesions.

There are also sections dealing with the surgical conditions of the cranial nerves and the peripheral nerves,

and with certain lesions of the nervous system which are amenable to surgical treatment in early selected cases.

The book is well written, but has little to commend it to the general surgeon or to the neurological surgeon. It covers the entire field of neurosurgery in a rather superficial manner, laying stress upon the main principles of diagnosis and treatment. As a text-book for differential diagnosis, or operative technique, in diseases of the nervous system, it is not to be recommended.

P. G. SILVER

The Pressure Pulses in the Cardiovascular System. Carl J. Wiggers, M.D. 200 pages, illustrated. Price \$5.00. Longmans, Green & Co., New York and Toronto, 1928.

The wayfaring physician, especially if part of his time is spent in contact with inquisitive students, will find plenty of room for thought in trying to account for this and that in the circulation of the blood. At every turn he will be hampered by his elementary knowledge of physiology and his inability to distinguish between fact and theory. If, in his search for authority, he picks up this book he will probably be appalled by the first two chapters, which contain much mathematics. If he skims lightly on to Chapter IV interesting observations begin to appear, and if he perseveres to the end he will have learned a great deal about the physiology of the circulation which is applicable to the interpretation of physical signs, of blood pressure readings, and of electrocardiograms. The book is a record of an enormous amount of experimentation and must appeal to the physiologist, who will probably agree with the reviewer that this sentence from the preface is worth remembering. An author, it is said, "has acquitted himself honourably if he has stated the facts correctly, has evaluated the results critically, and has convinced himself sincerely that the deductions are valid."

G. S. YOUNG

Researches in Craniometry. John Cameron, M.D., D.Sc., Dalhousie University, Halifax.

In "Researches in Craniometry," vol. 1, Professor John Cameron, of Dalhousie University, has collected together some twenty-two of his reprints from the *Transactions of the Royal Society of Canada* and the *American Journal of Physical Anthropology* which were published between 1924 and 1928, together with his part of the Report of the Canadian Arctic Expedition (1913-1918) on the osteology of the Western and Central Eskimos, and a few other papers. Appended is a complete list of Professor Cameron's papers from 1901 onwards. This list contains the titles of nine papers on craniometry that are now out of print and therefore unfortunately not incorporated in this volume.

It is obviously impossible to give a detailed review of these papers, and the main lines of Dr. Cameron's work can only be indicated here. The primary value is that the studies have been undertaken upon Professor Wingate Todd's collection of skulls in the Hamann Museum, Western Reserve University, where the race, sex and age of a cranium are definitely known. In all the work, therefore, the male have been rigorously separated from the female crania, in order to study the full effects of this important sex-factor.

After studying the cranio-facial axis of Huxley, the author passes to a new cranial angle, the Pituitary-Nasion-Basion, and studies its significance in man, the anthropoids and lower mammals. He formulates a new cranial index, the Nasion-Pituitary-Basion, that is consistent for both race and sex; then the evolution of the Frontal Cranial Arc, measured on the inner surface of the frontal bone in man and apes. Again, new angles, the Bregma-Nasion-Pituitary, Bregma-Pituitary-Nasion and Nasion-Bregma-Pituitary, are studied, and three new cranial indices described. All these are of special interest and value in being taken on sectional skulls and measured on the interior of the crania.

Note for the Medical Profession

A

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The photographs of Eskimo skulls are exceptionally well reproduced. S. E. WHITNALL

Handbook on Venereal Diseases. W. Turner Warwick, F.R.C.S. 221 pages, illustrated. Price 6/- net. Faber & Gwyer, Ltd., London, W.C.1, 1928.

Criticism of a book on venereal disease would seem a difficult undertaking since so much has been written on the subject. We are inclined to welcome a new treatise with some lack of enthusiasm and considerable scepticism. Mr. Warwick presents a handbook which takes cognizance of his subject clearly, simply, and adequately. Particularly to the nurse, the social worker, the trained attendant and even to the doctor, this book would be an invaluable adjunct to any of their bookshelves. A mass of information is synopsized in such a very clear and comprehensive way, but yet in such small space, that practically an evening would digest it.

While nothing new is propounded, a complete and up-to-date knowledge of venereal disease is given. To the medical student, whose time for reading is limited, and to the nurse whose ideas on the subject are so confused, and, yet, whose co-operation is invaluable in treatment, this book fills an important niche.

R. E. POWELL

No. Three Canadian General Hospital (McGill) 1914-1919. Edited and compiled by R. C. Fetherstonhaugh. Foreword from Field-Marshal His Royal Highness the Duke of Connaught. 274 pages, illustrated. Price \$5.00 cloth; \$10.00 leather edition. Burton's Ltd., 1243 St. Catherine St. W., Montreal, 1928.

This book is a history of the hospital unit, staffed by members and graduates of the Faculty of Medicine of McGill University, which served as a unit of the British Expeditionary Force in France during the greater part of the recent war. It is attractively bound in red, faced with the University crest, and is a very fine souvenir for the many who were members of the unit or were especially interested in it during its period of activity.

It is dedicated to the memory of those of its members who gave their lives in its service during the war. There is a foreword by H.R.H. the Duke of Connaught, who as visitor to McGill University took a lively interest in the welfare of its expeditionary hospital unit, and inspected it during mobilization in Canada and also in France when it was a going concern and at the zenith of its activity.

The sources of information from which the editor and compiler has drawn comprise chiefly the official war diary of the hospital, the official war history records, and the private diaries of some of the personnel. In an interesting and engaging way he presents the important incidents of the day to day life of the unit from mobilization to demobilization.

This unit was unique among war units in the balanced adjustment of its well-trained, both in the military and the professional sense, personnel. The successful functioning of the hospital from its inception seems to have been due in a very large measure to the personality and experience of its original commanding officer Col. Birkett and his senior officers Lt.-Cols. Yates, Elder and McCrae, who in addition to being senior members of the Medical Faculty, were also militia officers of long experience and two of them with previous active service. For this reason they were able to adapt themselves immediately to the peculiar requirements of a military hospital, so different in matters of organization, records and discipline from a civil hospital. The record of this unit reflects in a very creditable way the quality of the training received by the non-permanent Canadian Army Medical Corps to which the majority of the officer personnel had been attached, previous to the war. The establishment, including rank and file, was

drawn from departments of teaching hospitals corresponding to the divisions to be staffed by them in the war unit. This resulted in the assembling of an efficient unit with specially trained personnel, the members of which knew one another intimately and gave an impetus to the immediate development of a fine "esprit de corps" which never diminished.

The real history of the unit began and its quality was put to the test when it was dumped into the mud in France, on the famous Dannes-Camiers site, where its patients were protected from the chilly winds and icy moisture of the French coast only by threadbare tents of oriental splendour, quite unsuitable for active service conditions, but the only kind available. Here the early months of the trying winter of 1915-16 were passed, until the hospital was literally blown off the site. The elements thus decided the fate of the unit, and the wind turned out to be not so ill, since it resulted in the establishment of the hospital in its permanent quarters in Boulogne, where it was able to function to much better advantage.

In its short stay at Camiers, however, it created such a splendid record for efficiency and discipline, that it made a permanently favourable impression on the minds of the authorities. This was evidenced later on by the varied types of work required from the unit during the subsequent stages of the war, ranging from the development of a medical research department to the taking over of the whole worry of the hospitalization of the Portuguese. Establishment in solid quarters in Boulogne gave the hospital an opportunity to demonstrate its ability in the varied branches of war medicine, surgery, radiology, pathology, etc. The determination of the commanding officer with the co-operation of the personnel to get the best out of the equipment at their disposal led to an active campaign to cope with some of the many perplexing medical problems peculiar to the war, such as, gas gangrene, trench-nephritis, trench-foot, localization of missiles, gas-poisoning, wound-infection and the notorious P.U.O. (pyrexia of unknown origin).

These details are all noted in an interesting manner, as are also noted the various changes in personnel as they occurred, honours and promotions assigned to the unit, inspections by distinguished visitors and politicians, and the various phases of the ever changing daily life of the members of the unit.

In all it is an excellent presentation of the career of one of the most efficient medical units in the allied armies.

JOHN JAMES OWER

A Patient's Manual of Diabetes. Herbert W. Moxon, B.A., M.R.C.S., L.R.C.P. 132 pages. Price 6/- net. H. K. Lewis & Co., London, W.C.1, 1929.

The author writes (as he expresses it) with both eyes on the patient. From the outset he is intent on securing his intelligent co-operation. To this end, the greatest care is exercised in explaining in the simplest possible language the pathological physiology, the dietetics, and the insulin treatment (when necessary) of diabetes. The book is written in a spirit of optimism which should be reassuring and stimulating to the patient. Appendices give food-value tables, directions for urinalysis, and recipes of special interest to diabetics.

G. S. YOUNG

Nutrition in Health and Disease for Nurses. Lenna F. Cooper, B.S., M.A., M.H.E., Edith M. Barber, B.S., M.S., Helen S. Mitchell, B.A., Ph.D. 512 pages. 102 illustrations. Price \$3.50. J. B. Lippincott Co., Montreal, 1928.

This is a comprehensive and valuable manual both for the nurse in training and for the graduate nurse. The subject is treated in a well-ordered and careful manner and the matter is presented in easily accessible form. The contents are divided into four parts: Principles of Nutrition; Food Selection; Diet in Disease;

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and Cooking for the Sick and Convalescent. In the first part the authors deal with the various food elements, their metabolism and place in diets, and the variations in diets necessary at different age-periods. In this section also a chapter is devoted to the foods of the foreign-born and will be useful to those who help direct the diets of those patients who do not understand or have a distaste for our North American dietary methods.

The section on Diet in Disease deals with the various medical conditions where special diets are used and suggests diets which are useful and in the main conform with the most recent treatment of these conditions. Parts two and four present much valuable information of an economic as well as nutritional nature and also attractive recipes for the patient.

This volume should fill a want in the needs of both the bed-side nurse and the public health worker, and merits a place on the shelf of the hospital library and that of the individual nurse. J. B. SCRIVER

Essentials of Medicine. Charles P. Emerson, M.D., and Nellie Gates Brown, R.N. Eighth Edition, Revised and Reset. 588 pages, illustrated. Price, \$3.50. J. B. Lippincott Co., Montreal, 1928.

This book is well planned and well written for its purpose, as a text-book for nurses. Moreover, apart from its main object as a means of teaching "medicine" to nurses, it is well written. It is easy to read and is at the same time very complete, more complete than at first realized, because of the ease with which one is carried into the subject. Although the authors have been so successful in putting the subject before their readers, this volume is not to be taken as a reference book for particular cases. For that purpose the nurse will still find it advisable to look up the disease in a standard medical text-book if she is preparing a report for class work.

By leaving out a description of the gross anatomy of the body the authors have left room for quite comprehensive accounts of the physiology of the organs concerned in the various diseases dealt with.

This scientific matter is not overdone and is worked in with the symptoms and the essential accepted treatment, without giving the impression of boredom that is very often associated with such writings. F. A. YOUNG

The Kahn Test, a Practical Guide. R. L. Kahn. 201 pages. Price \$4.00. Williams & Wilkins Co., Baltimore, 1928.

This is a short practical guide written primarily for the laboratory worker but the author also kept in mind the larger medical group, the general clinician. Although the work deals essentially with technical problems it is written in so simple and clear a manner that the reader need not be specially trained in laboratory methods to understand and appreciate the value of this new test.

The Kahn test is based upon the phenomenon of precipitation of lipoids in syphilis. The test embraces the use of three reagents: (1) blood serum, (2) antigen, and (3) physiological salt solution.

In performing the test two steps are recognized. In the first step the antigen is mixed with the salt solution to "titer". The resulting mixture is a suspension of lipid aggregates having the property of becoming immediately dispersed on the addition of serum or additional salt solution. In the second step in which the antigen suspension is mixed with the serum two successive phenomena take place: (1) immediate dispersion of the aggregates followed by, (2) the formation of new aggregates if the serum is syphilitic. Non-syphilitic serum never results in precipitation of lipid aggregates.

The actual technique of the test has no place in a short review. The test is quite simple and the result of

the reaction is read within three minutes after mixing the reagents and shaking. The Kahn test has been performed parallel with complement fixation tests and has been found in complete agreement in 93 per cent of the sera tested; 5 per cent of the sera gave relative agreement and 2 per cent complete disagreement.

For the present the Kahn test will form an invaluable check on the Wassermann reaction. Later it may even supplant that cumbersome test. M. I. SENG

Epidemiology Old and New. Sir William Hamer, M.A., M.D., F.R.C.P. 180 pages, map. Price 9/- Kegan, Paul, Trench, Trubner & Co. Ltd., London, England, 1928.

A close study of the epidemiology of disease of the last hundred years with special reference to London, led the author to undertake a comparison between recent epidemics and those of Sydenham's time. In his *Medical Observations* Sydenham has given us a clear record of the epidemic and endemic fevers, of a period of about twenty-five years, with their variations and resemblances. The influenzas of 1915-1925 have been particularly studied and presented in comparison with Sydenham's fevers. Attention is drawn to the growing recognition of the folly of hailing, as "new diseases," wide-spread epidemic prevalences concurrently developed in various parts of the world; of laying stress in one country upon their sweating character, in other countries upon their proclivity for attacking the brain and spinal cord, or lungs, or gastro-intestinal tract, more exceptionally (and notably in tropical countries) upon manifestation of skin eruptions, and so forth; for the very simultaneity of these aberrant occurrences suggested the probability that the variously described "new diseases" stood in close relationship one with another.

The doctrine of the epidemic constitution originated by Hippocrates and expanded by Sydenham merely implies, we are told, that during natural periods of time, the epidemiological happenings in any stated area tend to exhibit peculiarities and particularities that are more or less distinctive, and there is a tendency toward periodic recurrence.

Our attention is drawn to endemic influenza and the occurrence of great crests as the epidemics of 1918-19, with smaller waves in the troughs between the great waves. A cerebro-spinal epidemic was the precursor of the great influenza epidemic of 1918 with encephalitis lethargica and other cerebrospinal diseases as trailers, just as comatose fevers preceded and followed the great influenza epidemics of earlier centuries. We are not to believe that cerebrospinal fever, poliomyelitis, encephalitis lethargica and epidemic hiccup are new diseases but rather a reappearance of nervous system disease, perhaps slightly modified, or a variant of similar disease seen in former epidemics. It is pointed out how environment may play its part in modifying or intensifying the symptoms of disease and how in different epidemics the system most affected may be pulmonary in one and gastrointestinal in another.

The work is a thought-provoking presentation of observed facts relative to epidemics separated by two hundred years with comparisons and deductions which should arouse the interest of both health officer and physician. J. H. ELLIOTT

PUBLICATIONS RECEIVED

General Medicine: The Practical Medicine Series. Edited by Drs. G. H. Weaver, Lawrason Brown, George H. Minot, W. B. Castle, W. D. Stroud and R. C. Brown. 832 pages, illustrated. Price \$3.00. The Year Book Publishers, Chicago, 1928.

Researches in Polynesia and Melanesia. Patrick A. Buxton. Parts V-VII. 135 Pages, illustrated. Price 9/-. London School of Hygiene and Tropical Medicine, London, 1928.